

Apple's QuickDraw 3D Starts a Revolution, Page 34

M A Y 1 9 9 5

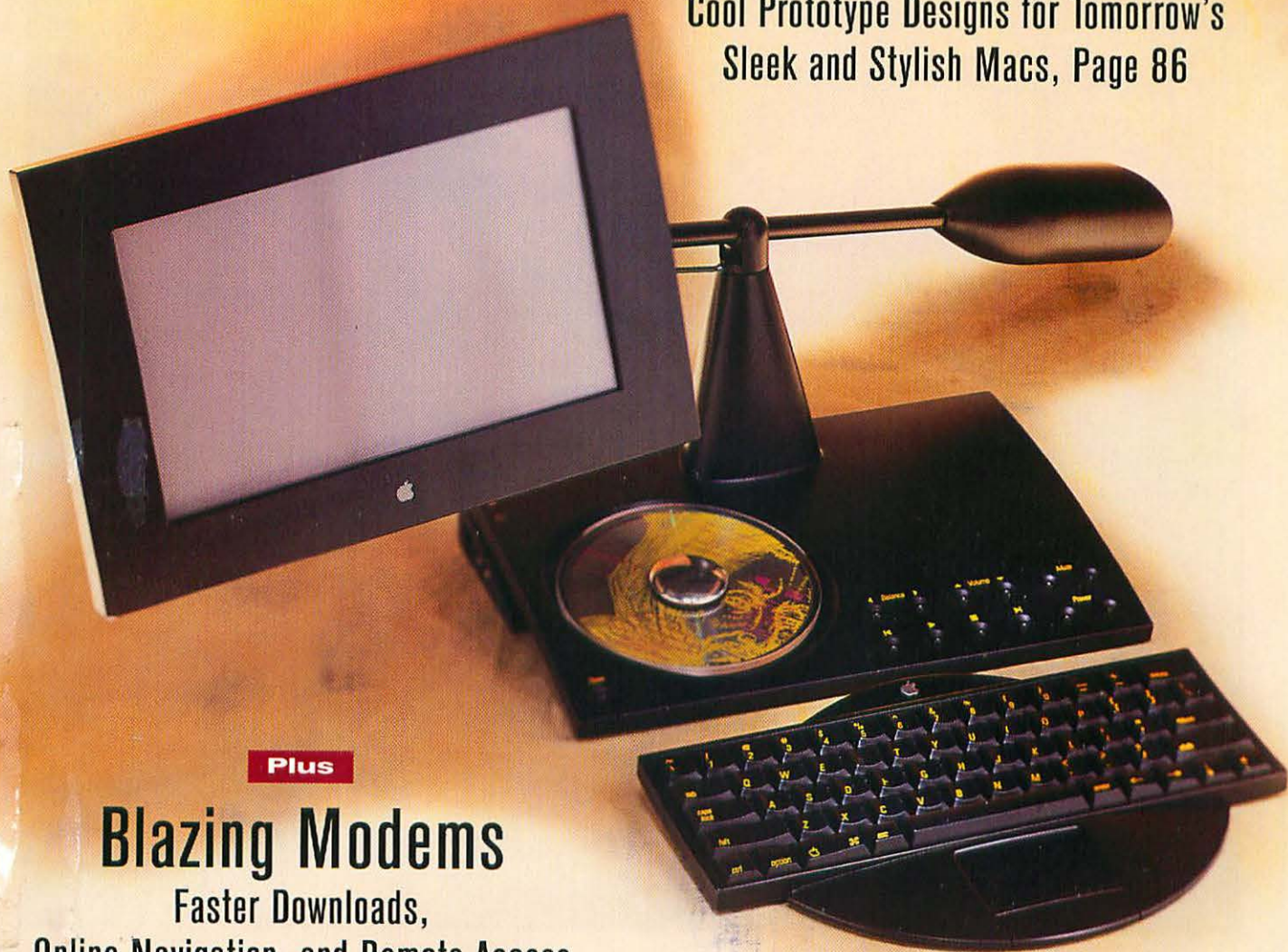
# Macworld

THE MACINTOSH® AUTHORITY

\$4.95 Canada \$5.95

## Secret Apple Products

Cool Prototype Designs for Tomorrow's  
Sleek and Stylish Macs, Page 86



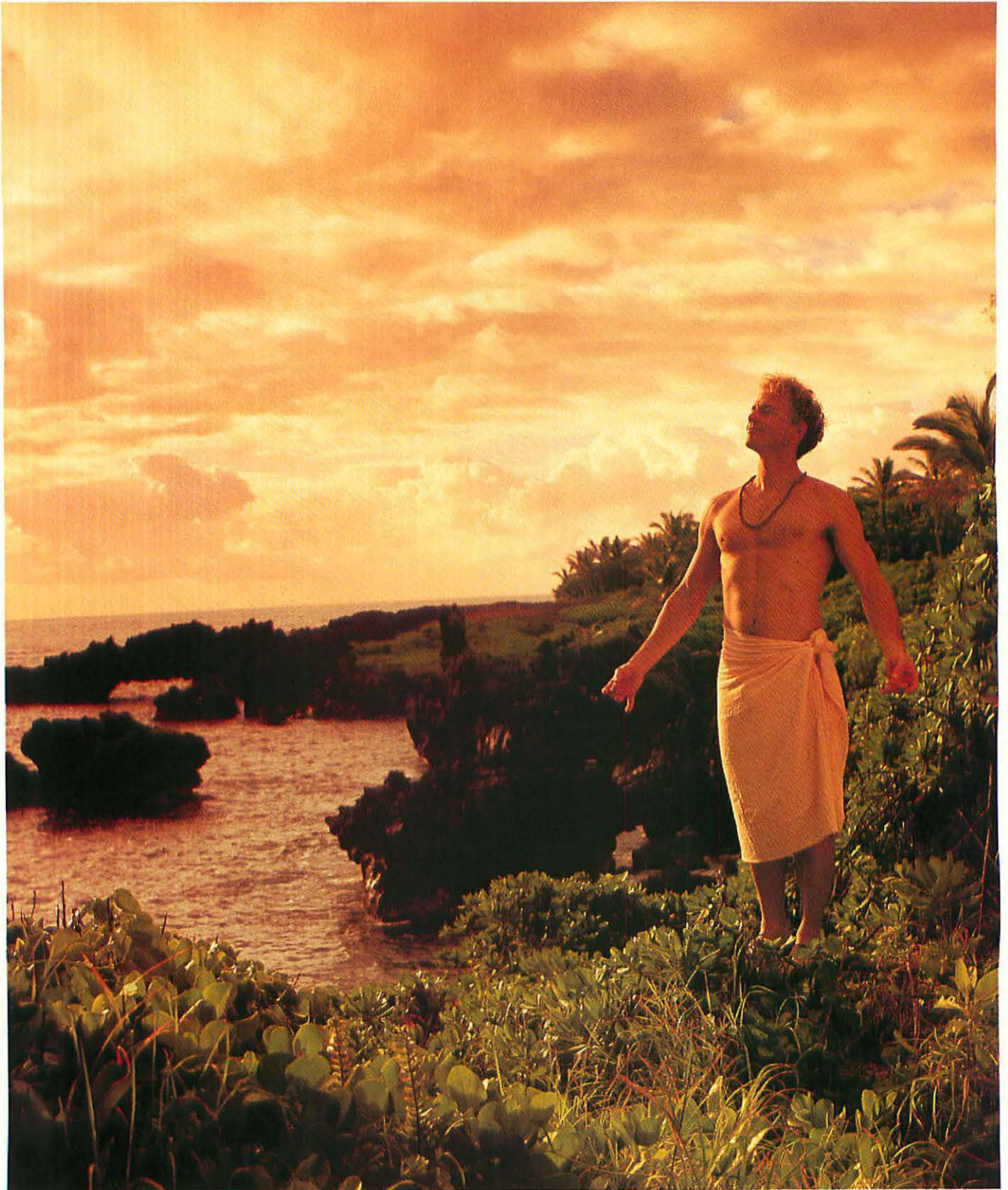
**Plus**

### Blazing Modems

Faster Downloads,  
Online Navigation, and Remote Access



**MANY PEOPLE STRIVE FOR PERF  
WOULD YOU SETTLE FOR PERF**





# FEEL HARMONY IN THEIR LIVES. FEEL HARMONY IN YOUR MAC?

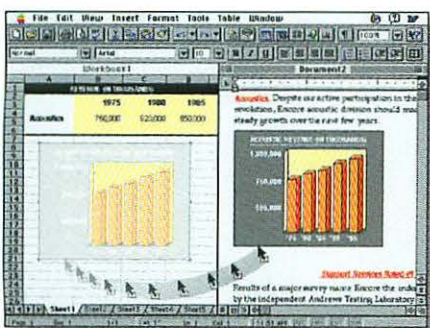
Microsoft  
Office 4.2

Everything in your life may not always come together. But on your Macintosh\*, it's another story. Because now there's a family of leading, full-featured programs for the Mac\* that truly work together like one.

Microsoft® Office 4.2.

Think of Office as programs that look alike. Programs that act alike. Programs that work so closely together, you'll feel like you're using just one.

An example? Let's say you want to change a sales chart that's part of a report to your boss. Go ahead. Simply click on your chart and



It's never been this easy to  
move data between programs.  
All you do is drag and drop.

instantly your Microsoft Excel spreadsheet tools appear. Without ever leaving Microsoft Word.

Talk about being connected.

The fact is, the walls are down. You're now free to combine words, numbers and pictures with ease. Without leaving your document.

Better yet, no matter what you're working on, you're working smart. Thanks to IntelliSense™ technology,



One click turns  
your Word  
document into  
a PowerPoint  
presentation.



built-in intelligence that senses what you want to do, then helps you do it.

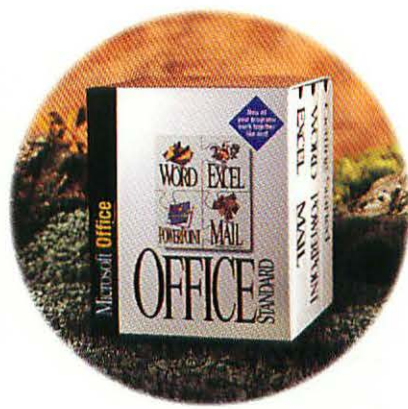
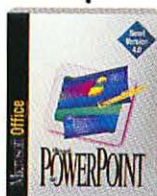
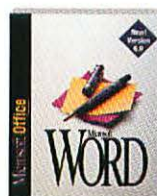
Behind Office, you'll find even more smarts: Microsoft's unlimited product support. It's available at no service charge.\* Just call.

But first, call (800) 709-3787, Department YP4, to locate a retailer near you. They'll help you learn all about Microsoft Office Standard 4.2, in versions for both Macintosh and Power Macintosh™.

So give us a ring.

Then give your Macintosh something that most people spend a lifetime searching for.

Microsoft Office 4.2  
for Macintosh and Power  
Macintosh includes  
versions of Microsoft Excel,  
Word, PowerPoint® and a  
Mail workstation license.



Microsoft Office

\* Support for Microsoft Office is no charge; however, normal telephone company charges apply. Microsoft support services are subject to Microsoft's then-current prices, terms, and conditions, and are subject to change without notice. © 1995 Microsoft Corp. All rights reserved. Microsoft Office Standard edition, shown here, includes: Microsoft Excel, Word, PowerPoint presentation graphics program and a Mail workstation license (server and software must be acquired separately). For info only: In the 50 United States, call (800) 709-3787, Dept. YP4. In Canada, call (800) 561-9048. Outside the U.S. and Canada, call your local Microsoft subsidiary or (206) 936-8661. Customers can reach Microsoft text telephone (TDD) services at (800) 892-5234 in the U.S. or (905) 568-9641 in Canada. Microsoft and PowerPoint are registered trademarks and IntelliSense is a trademark of Microsoft Corp. Macintosh and Mac are registered trademarks and Power Macintosh is a trademark of Apple Computer, Inc.







For more information, call 1-800-NEC-INFO. Or, for information via fax, 1-800-366-0476, and request document #79640. Thank you. And you. And you.

**And you.** And you. **And you.** *And you.* And you. **And you.** And you. **And you.** *And you.* **And you.** *And you.*



**NEC**  
Circle 15 on reader service card



# Contents

MACWORLD THE MACINTOSH® AUTHORITY MAY 1995

## Features

### 86 Inside Apple's Design

BY LON POOLE How does the Mac get its unique look and feel? We take you on an inside tour of Apple's industrial design group for a look at tomorrow's possibilities.



*An inside look at how Apple designs new Macs, page 86.*

### 94 The Color You Expect

BY DEKE MCCLELLAND We explain how to get the most from color-management systems—to keep the color you see the same as what you get.

### 102 Blazing Modems



BY JEFF ANGUS Macworld Lab examines 28.8-Kbps modems for reliability and compatibility.

### 108 Type Style

BY ERFERT FENTON *Macworld* highlights a cross section of the smartest, hottest new typefaces on the market.

### 114 Successful Workgroup Backup



BY TOM NEGRINO Create a winning backup strategy for workgroups—Macworld Lab shows you how.

*Macworld Lab puts a new standard of fax modem to the test, page 102.*



## News

### 33 MacBulletin

34 **News** QuickDraw 3D • Competing optical standards—who wins? • Internet and the Mac OS, and more

41 **Power Mac News** 604-equipped Power Macs around the corner • Power Watch: Electric-Image, Director, and more

43 **Macworld Online** Shareware for navigating the Net • Mac-specific Web sites, and more

### 45 New Products

## Opinion

### 19 State of the Mac

BY ADRIAN MELLO Apple's high-wire clone act.

### 25 Letters

### 143 The Desktop Critic

BY DAVID POGUE Home-grown cyberzines.

### 147 The Iconoclast

BY STEVEN LEVY Can an Apple a day keep Microsoft away?

### 149 Conspicuous Consumer

BY DEBORAH BRANSCUM Slander and libel online—a how-not-to guide.

### 234 Wise Guy

BY GUY KAWASAKI The Z factor, or, Are you a Mac zealot?

#### ON THE COVER

*Photo by Neal Brown*





*Pointers from Macworld  
Lab on successful  
backup strategies for your  
workgroup, page 114.*

## Graphics

- 122 News** Multimedia XTension and Photoshop competitor from Quark • GX-based page layout, and more

## At Work

- 126 News** The Mac's database future • Peachtree's back in the ring • Bar-code boomtown, and more
- 129 Working Smart**  
BY JIM HEID Font management for a slimmer, trimmer System.
- 135 Quick Tips**  
BY LON POOLE Tips, tricks, and shortcuts.

## Networks

- 138 News** Apple's PowerTalk plans • EMail-On-Demand Internet server • 100BaseT products ship, and more
- 141 PowerBook Notes**  
BY CARY LU The PowerBook as a multimedia machine.

## Buyers' Tools

- 151 Editors' Choice**  
Top picks from our comparative articles.
- 153 Star Ratings**  
Hardware and software reviews at a glance.
- 165 Streetwise Shopper**  
Hardware and software bargains: discounts, bundles, upgrades.
- 14 How to Contact Macworld**



May 1995, Volume 12, Number 5 Macworld (ISSN 0241-8647) is published monthly by Macworld Communications, Inc. Editorial and business offices: 901 Second St., San Francisco, CA 94107, 415/243-0505. Subscription orders and inquiries should be directed to 800/288-6848 or 303/604-1465. Subscription rates are \$30 for 12 issues, \$60 for 24 issues, and \$90 for 36 issues. Foreign orders must be prepaid in U.S. funds with additional postage. Add \$18 per year for postage for Canada and Mexico subscribers. Add \$69 per year for postage to all other countries. Second-class postage paid at San Francisco, California, and at additional mailing offices. Postmaster: Send address changes to Macworld, P.O. Box 54529, Boulder, CO 80323-4529. Printed in the U.S.A.

## Reviews

- 56 Macromedia FreeHand 5.0**  
Draw program
- 58 Stylus Color**  
Color ink-jet printer
- 59 Presenter Professional 3.0**  
3-D multimedia tool
- 60 PaperPort**  
Desktop scanner
- 61 Day-to-Day Organizer 1.0**  
Personal information manager
- 63 M.Y.O.B. 5.0**  
Accounting software
- 65 Route 66 1.5**  
Route-planning program
- 65 Virex 5.5.1**  
Virus-detection utility
- 67 CanOpener 3.0**  
Finder utility
- 69 Netscape Navigator**  
World Wide Web browser
- 69 QA-1500**  
LCD panel
- 71 Electronic Marker 1.0.2**  
Presentation and annotation tool
- 73 3D Atlas 1.1; Small Blue Planet 2.0**  
World globe software
- 73 MacTools Pro 4.0**  
Disk utility
- 75 Clientrac 2.0**  
Personal information manager
- 77 Graffiti 1.01**  
Newton text-entry software
- 77 TypeTamer 1.0.4**  
Font-management utility
- 79 DragStrip 1.0**  
Desktop utility
- 79 QuePoint**  
Input device
- 81 NEC AudioTower**  
Multimedia speaker system
- 81 Living Album 2.5**  
Multimedia album
- 83 Storybook Weaver Deluxe 1.0**  
Educational software
- 83 Thinking Mouse Macintosh ADB**  
Input device



# TIRED.





# WIRED.

Tired of space limitations? Lost data? Expensive cartridges? The old storage technology is just that. Old.

Get wired! With the Fujitsu DynaMO™ optical drive, the new



standard in high-capacity

data storage, you can reliably store and transport all kinds of large files. Even the most demanding graphics and multimedia applications.

DynaMO's industry-standard, 3.5" 230MB cartridges provide greater storage capacity for about 17¢ per megabyte. So you



*Warranted for life, DynaMO 230MB disks provide an absolutely reliable, inexpensive and high performance way to store and transfer files.*

can save larger files while you save money.

DynaMO also protects your data better. Since it uses magneto-optical media, DynaMO is immune to the problems that plague removable magnetic media. It's simply the most stable medium you can buy for transporting files or storing them.

That's why DynaMO disks come with an exclusive lifetime

warranty from Fujitsu, the world's second largest computer company.

And no matter what your application, from color separations to multimedia to backing up, DynaMO is faster than ever before. Up to 60% faster in the Mac version equipped with Turbo MO software.

No wonder

DynaMO outsells all other optical drives. Highest performance, lowest cost, unmatched reliability. Get DynaMO and you've got it wired.

1-800-898-1302

**FUJITSU**

COMPUTERS, COMMUNICATIONS,  
MICROELECTRONICS

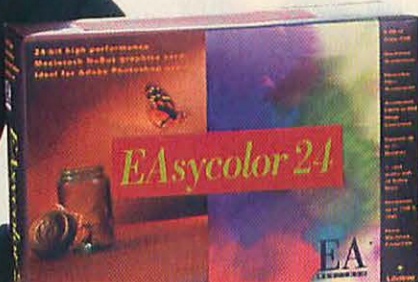
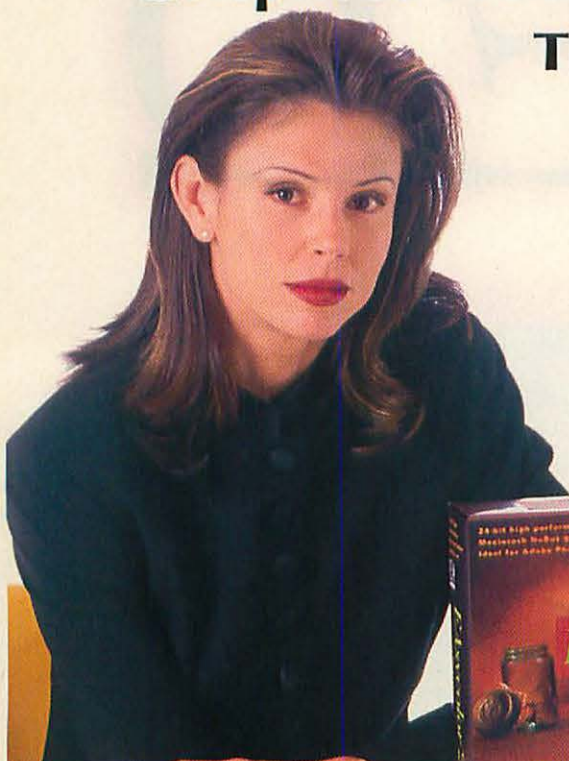


#### DYNAMO SPECIFICATIONS

CAPACITY	128-230MB
DATA TRANSFER RATE	2.1 MB/SEC.
AVERAGE SEEK TIME	30 MS
ROTATIONAL SPEED	3,600 RPM
DISK WARRANTY	LIFETIME
WEIGHT	2 LBS.



# Even the Editors Agree. In High-Performance Graphics Accelerators, The Choice Is Easy.



**"The EAsycolor 24 duplicates the functions of the Radius Thunder IV cards, but at a lower price."**

*-MacUser February, 1995*

While it's great to get good press, this quote only begins to tell the whole story. True, the new EAsycolor 24™ family of 24-bit high-performance graphics accelerator cards starts at \$1,299, far less than the Radius Thunder IV series (starting at \$2,599). And, they both feature Adobe Photoshop™ filters and CMYK-to-RGB image acceleration in a 7" NuBus board design. But from there, EAsycolor 24's functionality goes much further.

**First, EAsycolor 24 cards feature the power and speed of a programmable RISC processor.** Radius still uses an ASIC design, which is yesterday's technology. RISC is state-of-the-art and gives you far more flexibility and performance.

**Second, EAsycolor 24 cards offer faster QuickDraw™ acceleration.** They also have more on-board VRAM than the Thunder line, and are much easier to upgrade for today's powerful new graphics software. So, you have all the color accuracy, resolution and power you need to work at the highest level of graphic design and production.

**A family of cards are available so you can decide based on your needs and budget:**

**EAsycolor 24/1152** A great value, offering 24-bit acceleration at resolutions up to 1152x870.

**EAsycolor 24/1360** For graphics and pre-press professionals who want power and performance for resolutions up to 1380x1040 at an attractive price.

**EAsycolor 24/1600** Perfect for high-end users with demanding pre-press and document imaging applications at resolutions up to 1600x1200.

**Call EA Research direct at 1-800-681-6566 to order.** Or call your favorite Mac reseller, including MacMall, DTP Direct, and MacZone.

**Circle 53 on reader service card**

# EA

RESEARCH

*The Creative Catalyst*

EA Research, Inc.  
2420 Camino Ramon  
Suite 212  
San Ramon, CA 94583  
Ph 510.867.0967 FAX 510.867.0684

# Macworld

CHIEF OPERATING OFFICER

MACWORLD MAGAZINE

EXECUTIVE ASSISTANT

DIRECTOR OF FINANCE

BUSINESS MANAGER

FINANCE ASSISTANT

DIRECTOR OF HUMAN RESOURCES

HUMAN RESOURCE REPRESENTATIVE

DIRECTOR OF CORPORATE INFORMATION SYSTEMS

INFORMATION SYSTEMS MANAGER

CORPORATE BUSINESS MANAGER

ACCOUNTING/OPERATIONS MANAGER

ACCOUNTING/FACILITIES MANAGER

Colin Crawford

Sharon Sanderson

Stephen Daniels

Lisa Buckingham

Eos de Feminis

Shelly Ginenthal

Marisa Chow

Walter J. Clegg

Rick Valdez

Christina W. Spence


Pat Murphy

Michelle Reyes

MACWORLD is a publication of International Data Group, the world's largest publisher of computer-related information and the leading global provider of information services on information technology. International Data Group publishes over 220 computer publications in 64 countries. Forty million people read one or more International Data Group publications each month. International Data Group's publications include: ARGENTINA'S Computerworld Argentina, Infoworld Argentina; ASIA'S Computerworld Hong Kong, PC World Hong Kong, Computerworld Southeast Asia, PC World Singapore, Computerworld Malaysia, PC World Malaysia; AUSTRALIA'S Computerworld Australia, Australian PC World, Australian Macworld, IDG Sources, Reseller, Network World, Mobile Business Australia; AUSTRIA'S Computerwelt Osterreich, PC Test; BELGIUM'S Data News (CW); BRAZIL'S Computerworld, Game Power, Super Game, Mundo IBM, Mundo Unix, PC World; BULGARIA'S Computerworld Bulgaria, Ediworld, PC & Mac World Bulgaria, Network World Bulgaria; CANADA'S Direct Access, Graduate Computerworld, InfoCanada, Network World Canada; CHILE'S Computerworld, Informatica; COLOMBIA'S Computerworld Colombia; CZECH REPUBLIC'S Computerworld, Elektronika, PC World; DENMARK'S CAD/CAM WORLD, Communications World, Computerworld Denmark, LOTUS World, Macintosh Produktkatalog, Macworld Denmark, PC World Danmark, PC World Produktguide, Windows World; ECUADOR'S PC World; EGYPT'S Computerworld Middle East, PC World Middle East; FINLAND'S MikroPC, Tietoviikko, Tietoverkko; FRANCE'S Distributique, Golden Mac, InfoPC, Languages & Systems, Le Guide du Monde Informatique, Le Monde Informatique, Telecoms & Reseau; GERMANY'S Computerwoche, Computerwoche Focus, Computerwoche Extra, Computerwoche Karriere, Information Management, Macwelt, Netzwerk, PC Welt, PC Woche, Publish, Unit; GREECE'S Infoworld, PC Games; HUNGARY'S Alaplap, Computerworld SZT, PC World, PC Virag; INDIA'S Computers & Communications; IRELAND'S Computerscope (Computerworld); ISRAEL'S Computerworld Israel, PC World Israel; ITALY'S Computerworld Italia, Lotus Magazine, Macworld Italia, Networking Italia, PC World Italia; JAPAN'S Information Systems World, Computerworld Today, Nikkei Personal Computing (PCW), Macworld Japan, SunWorld Japan, Windows World; KENYA'S East African Computer News; KOREA'S Computerworld Korea, Macworld Korea, PC World Korea; MEXICO'S Compu Edicion, Compu Manufactura, Computacion/Punto de Venta, Computerworld Mexico, MacWorld, Mundo Unix, PC World, Windows; THE NETHERLANDS' Computable (CW), Computer Total, LAN Magazine, MacWorld; NEW ZEALAND'S Computer Listings, Computerworld New Zealand, New Zealand PC World; NIGERIA'S PC World Africa; NORWAY'S Computerworld Norge, C/world, Lotusworld Norge, Macworld Norge, Network, PC World Ekspress, PC World Norge, PC World's Product Guide, Publish World, Student Data, Unix World, Windowsworld, IDG Direct Response; PANAMA'S PC World Panama; PERU'S Computerworld Peru, PC World; PEOPLE'S REPUBLIC OF CHINA'S China Computerworld, China Infoworld, China Network World, PC World China, IDG Shenzhen's Computer News Digest, Electronics International, IDG HIGH TECH Beijing's New Product World; PHILIPPINES' Computerworld, PC World; POLAND'S Computerworld Poland, PC World/Computer; PORTUGAL'S Cerebro/PC World, Correio Informatico/Computerworld, Macin; ROMANIA'S PC World, Computerworld; RUSSIA'S Computerworld-Moscow, Mir-PC, Sety; SLOVENIA'S Monitor Magazine; SOUTH AFRICA'S Computing S.A., Network World S.A., Computer Mail; SPAIN'S Amiga World, Computerworld Espana, Comunicaciones World, Macworld Espana, NextWorld, PC World Espana, Publish, Sunworld, Super Juegos Magazine (GamePro); SWEDEN'S Attack, ComputerSweden, Corporate Computing, Lokala Netverk/LAN, Lotus World, MAC&PC, Macworld, Mikrodatorn, PC World, Publishing & Design (CAP), Datalingenjoren, Maxi Data, Windows World; SWITZERLAND'S Computerworld Schweiz, Macworld Schweiz; TAIWAN'S Computerworld Taiwan, Global Computer Express, PC World Taiwan; THAILAND'S Thai Computerworld; TURKEY'S Computerworld Monitor, Macworld Turkiye, PC World Turkiye; UKRAINE'S Computerworld; UNITED KINGDOM'S Computing/Computerworld, Connexion/Network World, Lotus Magazine, Macworld, Sunworld; UNITED STATES' AmigaWorld, Cable in the Classroom, CD Review, CIO, Computerworld, Desktop Video World, DOS Resource Guide, Electronic Entertainment Magazine, PlayRight, Power PC World, Federal Computer Week, Federal Integrator, GamePro, IDG Books, InfoWorld, InfoWorld Direct, Laser Event, Macworld, Multimedia World, Network World, NEXTWORLD, PC Letter, PC World, Publish, SunWorld, SWATPro, Video Event; VENEZUELA'S Computerworld Venezuela, MicroComputerworld Venezuela; VIETNAM'S PC World Vietnam.





Call him Max.  He's the little retriever icon in Select Phone you click on whenever you want to fetch a name, address or phone number from among the 84 million listings contained in this amazing Phonebook on CD-ROM.

Say you sell superior pedigree chow to vets. Key in vet under business type, the area code or zip code for your part of the state, and up they'll pop. There are 12 vets listed in zip code 22031 in Fairfax, VA. Now who do *you* want to find?

Like a good hound, Max will scurry off through the megabyte brush to root up any listing – or any group of listings – by searching on a name, street address, city, zip code, area code, business heading – even SIC code. Once found, you're then free to call these names, mail to them or just drop them into your own personal database for an even greater plan of your own design. Get the idea? It's a tidal wave of information – *unleashed*. For the names of software stores carrying Select Phone, call 1-800-99-CD-ROM. Online go to [sales@procd.com](mailto:sales@procd.com).



**FIND WHAT YOU'VE  
BEEN MISSING.**

**Circle 217 on reader service card**

**Need to look-up all the vets in Virginia?  
This will leave you drooling.**





# REMEMBER

WHY

You LIKE

## DESIGN



ORIGINAL CLIP ART

EXCLUSIVE TYPEFACES

UNIQUE STOCK PHOTOS

IDEAS

SOLUTIONS

TIPS & TRICKS

FOR A *free*  
IMAGE CLUB  
SOFTWARE  
CATALOG

CALL TODAY

# 800 387 9193

IMAGE CLUB GRAPHICS INC.  
729 TWENTY FOURTH AVENUE SOUTHEAST CALGARY ALBERTA CANADA T2G 5K8  
applelink cda0573 compuserve 72500.2323 america online imageclub  
world imageclub internet imageclub@aol.com  
WORDS copyright 1995 image club graphics



Circle 50 on reader service card

# Macworld

EDITOR-IN-CHIEF

Adrian Mello

## EDITORIAL

**EXECUTIVE EDITORS** Galen Gruman, Carol Person  
**DIRECTOR OF EDITORIAL OPERATIONS** Jane Lagas  
**SENIOR EDITOR/FEATURES** Charles Piller  
**SENIOR ASSOCIATE EDITOR/AT WORK** Dan Littman  
**SENIOR ASSOCIATE EDITOR/NEWS** Tom Moran  
**ASSOCIATE EDITOR/GRAPHICS** Cathy E. Abes  
**ASSOCIATE EDITOR/DEPARTMENTS** Marjorie Baer  
**ASSOCIATE EDITOR/NEW PRODUCTS** Cameron Crotty  
**ASSOCIATE EDITOR/NETWORKS** Elizabeth Dougherty  
**ASSOCIATE EDITOR/REVIEWS** Wendy Sharp  
**ASSISTANT EDITORS** Suzanne Courteau,  
Jim Feeley, Joanna Pearlstein  
**ADMINISTRATIVE ASSISTANTS** Matthew Hawn,  
Lyn Taylor  
**ASSISTANT TO THE EDITOR-IN-CHIEF** Elizabeth Maffly  
**CONTRIBUTING EDITORS** Deborah Branscum,  
Robert C. Eckhardt, Erfert Fenton, Jim Heid,  
Guy Kawasaki, Steven Levy, Cary Lu, Deke McClelland,  
Tom Negrino, David Pogue, Lon Poole, Steve Roth,  
Charles Seiter, Franklin N. Tessler

## INTERNATIONAL EDITORS

Osmund Iversen, Australia, 011 61 2 439-5133;  
Marianne Fajstrup, Denmark, 011 4536 44 28 00;  
Michael Thevenet, France, 011 33 1 49 04 79 00;  
Stephan Scherzer, Germany, 011 49 89 3 60860;  
Enrico Lotti, Italy, 011 39 2 58 011660;  
Osamu Honma, Japan, 011 81 3 5276-0541;  
Shin Cho, Korea, 011 82 2 579-8031;  
Paul Molenaar, Netherlands, 011 31 23 354554;  
Toralf Ostvang, Norway, 011 47 22 05 3000;  
Alvaro Ibariez, Spain, 011 34 1 319 4014;  
Nicklas Mattsson, Sweden, 011 46 8667-9180;  
Cuno Schneeberger, Switzerland, 011 41 1 387 4429;  
Cemal Balci, Turkey, 011 90 1 279 1180;  
Peter Worlock, United Kingdom, 011 4471 831-9252

## LAB

**LAB DIRECTOR** Lauren L. Black  
**SENIOR TECHNICAL ANALYSTS** Mark Hurlow,  
Tim Warner  
**TECHNICAL ANALYSTS** Matthew R. Clark,  
Danny Lee

## COPY EDIT AND EDITORIAL PRODUCTION

**MANAGING EDITOR** Charles Barrett  
**ASSISTANT MANAGING EDITOR** Ruth Henrich  
**EDITORIAL PRODUCTION MANAGER** Jeff Sacilotto  
**SENIOR COPY EDITOR** Katherine L. Ulrich  
**COPY EDITORS** D. Jacqueline Kan,  
Paul King  
**PRODUCTION EDITORS** Lisa Brazial, Doreen Engelmann

## ART AND DESIGN

**DESIGN DIRECTOR** Dennis McLeod  
**ART DIRECTOR** Joanne Hoffman  
**SENIOR DESIGNER** Leslie Barton  
**SENIOR DESIGNER/INFORMATIONAL GRAPHICS** Arne Hurty  
**ASSOCIATE ART DIRECTORS** Sylvia Benvenuti, Kent Tayenaka  
**ASSOCIATE DESIGNER** Tim Johnson  
**SENIOR DESIGN ASSOCIATE** Martha Katt  
**DESIGN ASSOCIATE** Belinda Chlouber

## ONLINE

**EDITOR** Suzanne Stefanac  
**ONLINE ADMINISTRATOR** Steve Costa  
**CONTENT ENGINEER** Paul Devine  
**PRODUCTION ASSISTANT** Kristine Moss



**NEW!**  
Upgrade  
for only \$149\*

**omniPAGE PRO 5.0**

# OmniPage Professional—OCR that's so accurate, anything else is simply pointless.

**We'd like to make our point perfectly clear.**  
**OmniPage® Professional 5.0 saves time by accurately retyping documents for you.**

OmniPage Professional sets the standard in OCR. Offering more accuracy, more power, and more flexibility than ever before.

In fact, it offers the most advanced OCR technologies in the industry—technologies that Caere has pioneered.

Only OmniPage helps you spend more time using scanned information instead of correcting it. Its breakthrough 3D OCR™ feature recognizes grayscale information during document scanning to greatly improve recognition of poor-quality documents.

That's not all. OmniPage recognizes a broader range of documents, reading the most difficult characters and symbols with ease. A feat made possible thanks to its exclusive Language Analyst™ neural network and fax recognition capabilities.

OmniPage also scans and saves text and embedded graphics, allowing you to easily edit both with a WYSIWYG Text Editor and 24-bit color image editor.

And one-click OCR processing makes OmniPage as easy as it is powerful.

So get OmniPage Professional 5.0 today. If you recently purchased your scanner—including Hewlett-Packard ScanJet scanners—you may be eligible for our Special Upgrade to OmniPage Professional for only \$149\*. See your local Caere dealer or call for more information on the complete family of OmniPage products at 1-800-535-SCAN.

For superior performance, it's your best shot.

\* Special Upgrade offer: If you have an OmniPage, WordScan or OmniScan SE product, you are eligible for a \$149 upgrade to OmniPage Professional 5.0. Call 1-800-535-SCAN for details.

**omniPAGE**  
PROFESSIONAL



For Your Information.

Caere and OmniPage are registered trademarks of Caere Corporation. The Caere logo, 3D OCR and Language Analyst are trademarks of Caere Corporation. All other trademarks are of their respective companies. ©1995. All rights reserved.

Circle 69 on reader service card

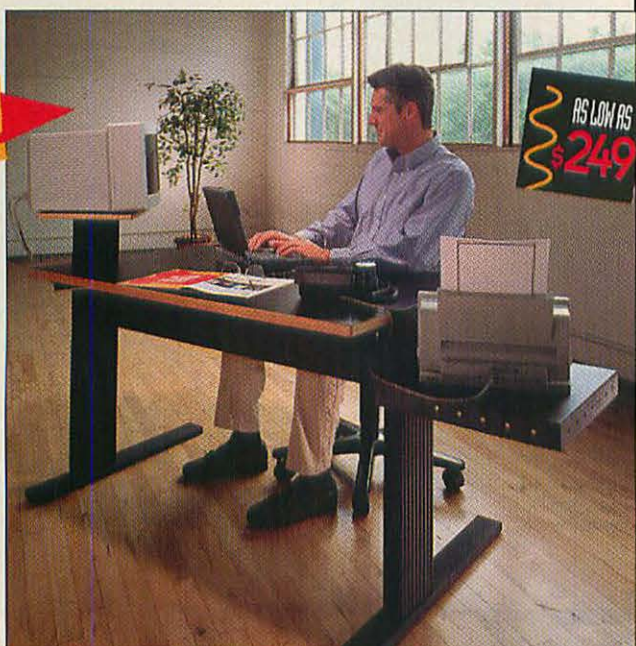


# "The Best Mac Desk Ever."

**NEW!**

- Ergonomic
- Fully Adjustable
- Strong
- Guaranteed
- VAR Inquiries Welcome

**a g i o**<sup>TM</sup>  
BEAVERTON, OREGON



**Free Catalog! 800.688.2446**

Phone 503.690.1400 | FAX 503.690.1423 | Europe 011.41.62.631026 | Japan 011.81.3.3583.0436 | 

## Do You Have \$100,000 To Spend On Document Imaging?

### We Didn't Think So.



**FINALLY...a cost-effective, full-featured document management solution.**  
Discover today how scanning, OCR, and full-text search will increase organization and productivity for your workgroup.

# I M A X I S

Call 1-800-IMAXIS-0  
1-800-462-9470 or 703-204-2114

Circle 88 on reader service card

# Macworld

## ADVERTISING SALES

ACTING ASSOCIATE PUBLISHER	Suzanne Saluti (415/975-2624)
ADMINISTRATIVE ASSISTANT	Bethany A. Baller (415/978-3160)
NATIONAL ACCOUNTS MANAGER	Lois Brennan (415/978-3262)
ACCOUNT EXECUTIVE	Liz Pohon (415/978-3252)
NATIONAL ACCOUNTS MANAGER	Marsha Bowers (415/978-3155)
ACCOUNT EXECUTIVE	Christine Wong (415/978-3192)
NATIONAL ACCOUNTS MANAGER	Lianne Kirkland (714/250-1307)
ACCOUNT EXECUTIVE	Heather Miller (415/978-3276)
NATIONAL ACCOUNTS MANAGER	Cynthia Ramsey (212/586-5590)
NATIONAL ACCOUNTS MANAGER	Paul Bonarrigo (508/872-8600)
ACCOUNT EXECUTIVE	Jo-Ann Sturridge (415/978-3164)
ADMINISTRATIVE ASSISTANT	Alexandra Dileo (508/872-8600)
NATIONAL ACCOUNTS MANAGER	Lisa Ladle (708/827-4477)
ACCOUNT EXECUTIVE	Jo-Ann Sturridge (415/978-3164)
ADMINISTRATIVE ASSISTANT	Kathy Poppenhagen (708/827-4477)
DIRECTOR OF TELESales OPERATIONS	Stephen R. Plevin (415/978-3138)
ACCOUNT MANAGERS/MAIL ORDER	Edward Ramirez (415/974-7413) Lisa Weisberg (415/978-3117)
MACWORLD SHOPPER	800/888-8622 Niki Stranz (415/978-3105), Carol Johnstone (415/978-3152), Shannon Smith (415/974-7414)

## MACWORLD GLOBAL PRODUCT SUPPORT CENTER

DIRECTOR OF MARKETING AND COMMUNICATIONS	Kimberlee A. Luedde
TECHNICAL MANAGER	Chip Carman

## MARKET RESEARCH

RESEARCH DIRECTOR	Linda Lawrence
SENIOR RESEARCH ANALYST	Jason Douglas
ASSOCIATE RESEARCH ANALYST	Matt McAlister

## MARKETING

MARKETING DIRECTOR	Cynthia Koral
SENIOR MARKETING MANAGER	Jeff Julian
MARKETING MANAGER	Rhona Hamilton
TRADE SHOW/EVENTS COORDINATOR	Anna Noetzel

## CIRCULATION

DIRECTOR OF CIRCULATION	Angelina Beitia
SINGLE-COPY SALES DIRECTOR	George Clark
CIRCULATION MANAGER	Lori Hitchcock
NEWSSTAND SALES MANAGER	Martin Garchar
SUBSCRIPTION MANAGER	Elizabeth Jensen
PROMOTION MANAGER	Kelvin Gee
CIRCULATION ASSISTANT	Eric Jue
NEWSSTAND COORDINATOR	Dalia Schwartz
SUBSCRIPTION COORDINATOR	Deirdre Dugan
SUBSCRIPTION INQUIRIES	800/288-6848

## PRODUCTION

VICE PRESIDENT/DIRECTOR OF MANUFACTURING	Anne Foley
PRODUCTION MANAGER	Cynthia Mazzola
BILLING INFORMATION MANAGER	So Fong Yip
AD TRAFFIC COORDINATOR	Shellie Anderson
DTP COORDINATOR	Clayton Haberman
BILLING ASSISTANT	Lily Cheung



**A word about computer memory upgrades:**

# VIKING

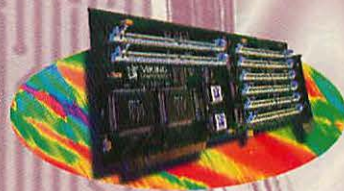
If you're in the market for memory, there are actually two words you won't want to forget, Viking Components. In fact, if you only remember those two words, you'll have access to over 900 specific memory products to upgrade virtually any brand of computer on the market today. That includes modules, expansion boards, credit cards and even CPU upgrades for PCs, workstations, notebooks, subnotebooks, palmtops and laser printers

Each Viking memory product is designed, developed and manufactured in-house, in the USA, using only manufacturers' specified parts. Every one is thoroughly tested to exceed OEM specs, and sold to you with a Lifetime Replacement & Service Warranty – the first in the industry.

We have offices and distributors around the world, offering virtually instant global availability of Viking products. We also have a complete staff of engineers and customer support personnel to help you through all your memory questions. If all that isn't enough, Viking provides value.

Value in terms of time- our ability to quickly develop and deliver quality products is unbeatable. Our prices are some of the most competitive on the market.

That's why the best names in the business use Viking Components.



**Manufacturing Tomorrow's Products...Today!**

11 Columbia • Laguna Hills, California 92656 Tel: 714-643-7255 • Fax: 714-643-7250

Customer Support: 1-800-643-3255 • Sales: 1-800-338-2361

Circle 233 on reader service card



As far as Apple is concerned,  
only one table can support the family.



Apple calls it "The perfect place to put your computer to work." It's sturdy, ergonomic and carefully designed around Apple's modular footprint to fit the Mac family *plus* peripherals. Call today for a free catalog of our complete line.

**PowerTable**

More quality for your money.

800-722-6263



**ScanCo**

P.O. Box 3217, Redmond, WA 98073-3217

PowerTable design is patent pending. PowerTable is a trademark of ScanCo Computer Furniture, Inc. Apple is a trademark of Apple Computer, Inc.

# Macworld

## HOW TO CONTACT MACWORLD

### SUBSCRIPTION QUESTIONS

Mainland USA 800/288-6848  
All other locations 303/604-1465  
or write Subscription Services  
P.O. Box 54529  
Boulder, CO 80322-4529

### MACWORLD ONLINE

Contact Macworld editors directly via the Macworld areas on America Online and eWorld. On these services, readers can search current and past issues, exchange messages with editors and other readers, and attend live online events. Readers can also send electronic mail via CompuServe (70370,702), MCI Mail (294-8078), AppleLink (Macworld1), or Internet (macworld@macworld.com).

### MACWORLD IN MICROFORM

Macworld is available on microfilm and microfiche from UMI, 300 N. Zeeb Rd., Ann Arbor, MI 48106-1346; 313/761-4700.

### BACK ISSUES OF MACWORLD

Write to Back Issues of Macworld, c/o Snyder Newell, Inc., P.O. Box 7046, San Francisco, CA 94120-9727; \$6 per issue (\$20 overseas). Prepayment in U.S. funds necessary. Make checks and money orders payable to Macworld Magazine.

### MACWORLD EDITORIAL

MAIL OR COURIER Macworld Communications, Editorial Dept., 5th floor, 501 Second St., San Francisco, CA 94107; 415/243-0505.

AppleLink: Macworld1

CompuServe: 70370,702 Fax: 415/442-0766

LETTERS TO THE EDITOR All written comments, questions, and suggestions regarding any aspect of the magazine are read by our editor. We reserve the right to edit all submissions; letters must include your name and address. Direct all correspondence (by mail or electronically) to Letters to the Editor.

QUESTIONS AND QUICK TIPS Direct questions or tips on how to use Mac computers, peripherals, or software (by mail or electronically) to Quick Tips, Lon Poole. Please include your name and address.

CONSUMER ADVOCATE Been burned? Really steamed? Direct your concerns (by mail or electronically) to *Conspicuous Consumer*, Deborah Branscum.

NEW PRODUCTS AND UPDATES Direct press releases and product announcements (by mail or electronically) and shrink-wrapped software upgrades (by mail or courier) to *New Products Editor*.

BUGS & TURKEYS Mail in descriptions of turkeys (flaws in conception or design) or bugs (defects or flaws in execution); copies of correspondence with vendor or telephone contact notes (if any); and your telephone number, mailing address, and T-shirt size.

STREETWISE SHOPPER To obtain an application for inclusion of special product promotions in *Streetwise Shopper*, vendors and resellers should contact Charles Barrett (by mail or electronically).

REPRINTS AND PHOTOCOPY PERMISSION Permission will be granted by the copyright owner for those registered with the Copyright Clearance Center (CCC) to photocopy any article herein—for personal or internal reference use only—for the flat fee of \$1.50 per copy of the article or any part thereof. Specify ISSN 0741-8647 and send payment directly to the CCC at 27 Congress St., Salem, MA 01970. Address requests for reprint orders and for permission to copy editorial for other purposes to Reprints and Permissions, Editorial Dept.

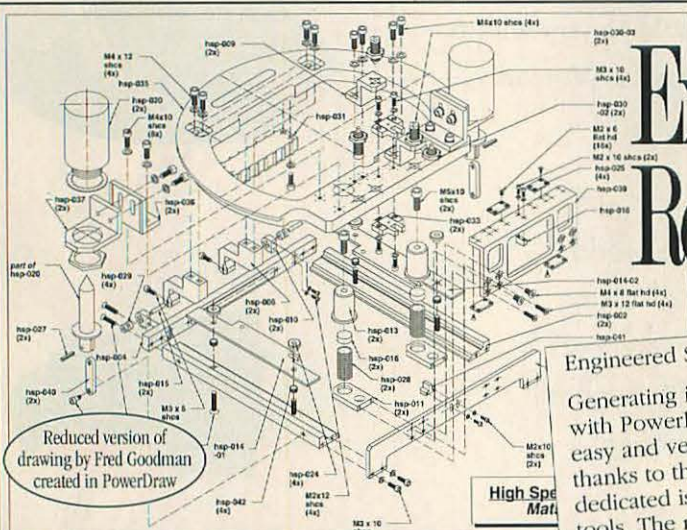
WRITING FOR MACWORLD Do not send us unsolicited manuscripts. If you're interested in writing for Macworld, send a stamped, self-addressed envelope along with a request for our writer's guidelines. Direct (by mail) to Writer's Guidelines, Editorial Dept.

FOUNDER David Bunnell  
FOUNDING EDITOR Andrew Fluegelman 1943-1985

Macworld is a publication of Macworld Communications, Inc. Macworld is an independent journal not affiliated with Apple Computer, Inc. Macworld, Macworld Interactive, Macworld Shopper, MW, MW Lab, MW Shopper, Desktop Critic, Expert Graphics, Quick Tips, Star Ratings, and Conspicuous Consumer are registered trademarks of International Data Group, Inc. Power PC World is a trademark of IDG, Inc. APPLE, the APPLE LOGO, MAC, and MACINTOSH are registered trademarks, and MACLETTER and POWERBOOK are trademarks of Apple Computer, Inc. Printed in the United States of America. Copyright © 1995 Macworld Communications, Inc. All rights reserved. Macworld is a member of IDG Communications, the world's largest publisher of computer-related information.



# Expert Results



Reduced version of drawing by Fred Goodman created in PowerDraw

High Speed Mat

Engineered Software, Generating isometrics with PowerDraw is easy and very quick thanks to the many dedicated isometric tools. The results look sharp—as if created using time-honored technical illustration techniques!

PowerDraw does for CAD what the Mac did for computers.

Sincerely,  
*Fred Goodman*  
Fred Goodman



**PowerDraw**<sup>TM</sup>  
IN 41 COUNTRIES AROUND THE WORLD




ENGINEERED SOFTWARE<sup>TM</sup>

CALL 910-299-4843 OR FAX 910-852-2067 • IN CANADA 204-453-8111

Circle 12 on reader service card



# The Joule™ Portable. "Snazzy, Stylish Storage"

MacUser — Dec. 1994 

Joule Portable  
includes Dock

Unplug

...and go

Joule 730MB Portable

**\$349**

SPECIAL

Featuring Superior  
**QUANTUM**  
Mechanisms

**FREE**

with purchase:

**Silverlining 5.6**  
\$99 value



Now A Compact Hard Drive  
Without Compromises...  
Plus Joule's Valuable  
System Compatibility.

Why buy a conventional hard drive when you can get all the advantages of a Joule for no more? In our competitive trials Joule is the smallest, the lightest, the quietest, and the most portable full-size drive. Only Joule gives you the added value of stand-alone operation, portability or integration into the acclaimed Joule Modular Storage System.

Joule Portable drives give you all the features you expect and more: Quickset™ adapters for easy plug and play, La Cie Term™ switchable active SCSI termination for a clean signal, up-front switch and activity lights, dual connectors for daisy chaining, and SilverLining™ 5.6 disk management software. Available exclusively from La Cie, a Quantum company, Joule drives offer a superior warranty and Quantum's Fortune 500® stability so you can buy with confidence.

...or grow.



**LACIE**  
LIMITED  
A QUANTUM COMPANY

To order call toll free:

**800-999-1422**

Mon.-Fri. 5AM-7PM & Sat. 8AM-NOON PST • International 503-520-9000 Fax 503-520-9100 (24 hrs.)  
UK 0800-89-3026 Australia 0014-800-123-007 VISA, MasterCard, American Express, C.O.D. and approved purchase orders accepted.

\* Call for details, conditions, limited money back guarantee, and fees. Prices do not include shipping and only apply to products shipped within the continental United States. Add sales tax where applicable. Joule, Joule Portable, Quickset, La Cie Term, SilverLining, La Cie and the La Cie logo are trademarks of La Cie, Inc., a Quantum Company. All other trademarks are the property of their respective companies. All prices, special offers, terms, warranties, descriptions, products and services herein are subject to change without notice or without recourse. © Copyright 1994 La Cie, Inc. All rights reserved.



# The Joule Advantages

## Joule Portable Hard Drives



Portable or removable storage drives can be used alone or in a stack.

**540MB Hard Drive**

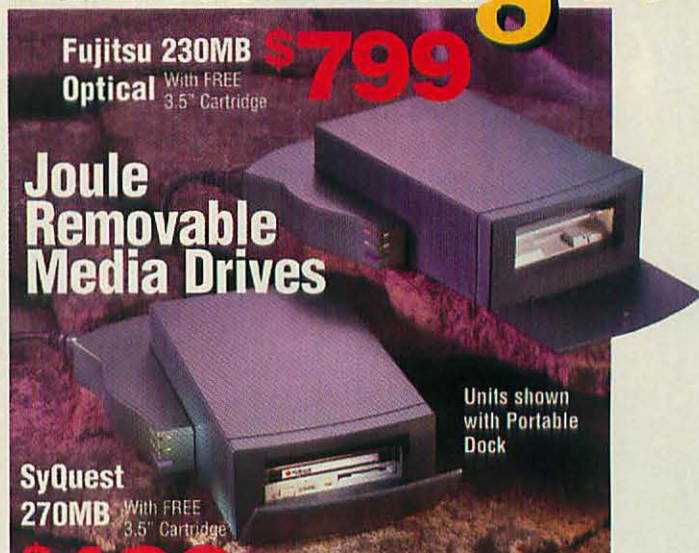
**\$309**

Including Dock

Silverlining<sup>™</sup>  
**FREE**  
with La Cie Drive!

The Joule Portable features high performance hard drives from Quantum for advanced drive technology. Modules with mounts are also a snap to install in a single, vertically interlocked system.

	Joule Portable with Dock	Joule Module with Mount	Internal Drive with Bracket
<b>3.5" HARD DRIVES - Quantum - 2 or 5 Year Warranties</b>			
<b>Limited Supply</b> 170MB	<b>\$209</b>	<b>\$209</b>	<b>\$149</b>
270MB	<b>\$249</b>	<b>\$249</b>	<b>\$179</b>
340MB	<b>\$259</b>	<b>\$259</b>	<b>\$189</b>
<b>HOT!</b> 540MB	<b>\$309</b>	<b>\$309</b>	<b>\$239</b>
730MB	<b>\$349</b>	<b>\$349</b>	<b>\$279</b>
1080MB	<b>\$649</b>	<b>\$649</b>	<b>\$579</b>
1400MB	<b>\$839</b>	<b>\$839</b>	<b>\$769</b>
<b>2.5" HARD DRIVES - Quantum - 2 Year Warranty</b>			
256MB	<b>\$339</b>	<b>\$339</b>	<b>\$269</b>
341MB	<b>\$399</b>	<b>\$399</b>	<b>\$329</b>
514MB	<b>\$529</b>	<b>\$529</b>	<b>\$459</b>
<b>JOULE PORTABLE DOCK without drive</b>			<b>\$149</b>
<b>3.5" TSUNAMI CASE HARD DRIVES - Quantum - 5 Year Warranty</b>			
	Tsunami Case		Internal Drive
2100MB	<b>\$1079</b>		<b>\$999</b>
4300MB	<b>\$1899</b>		<b>\$1829</b>



**Fujitsu 230MB Optical** With FREE 3.5" Cartridge **\$799**

## Joule Removable Media Drives

**SyQuest 270MB** With FREE 3.5" Cartridge

**\$489**

Units shown with Portable Dock

Only Joule removable media drives give you our modular system advantages and portability. Choose from SyQuest<sup>®</sup>, Fujitsu Optical, DAT and Tape Drives in either stand-alone Portable or stackable Modules with Mount to extend your Joule Base. Or select an internal drive for use in your Mac.

	Portable Drive with Dock	Module with Mount (for use with Base)	Internal with Bracket
<b>230MB FUJITSU OPTICAL</b> —With FREE 3.5" Cartridge			
	<b>\$799</b>	<b>\$799</b>	<b>\$729</b>
<b>SYQUEST DRIVES</b> — With 1 FREE SyQuest Cartridge			
105MB	<b>\$369</b>	<b>\$369</b>	<b>\$299</b>
270MB	<b>\$489</b>	<b>\$489</b>	<b>\$419</b>
88MB	88MB & 200MB SyQuest Drive available in Zero Footprint and internal versions only. Add \$60 for Zero Footprint Case configuration.		<b>\$369</b>
200MB			<b>\$439</b>
<b>TAPE DRIVE</b> — Includes 1 FREE DAT Tape & Comes With Retrospect™			
600MB	<b>\$649</b>	<b>\$649</b>	<b>\$579</b>
<b>DAT TAPE DRIVE</b> — Includes 1 FREE DAT Tape & Comes With Retrospect™			
8.0GB	<b>\$999</b>	<b>\$999</b>	<b>\$929</b>
<b>SILVERLINING 5.6</b> — Hard Disk Management Software			<b>\$99</b>
<b>REMOVABLE CARTRIDGES</b>			
44MB SyQuest	<b>\$69</b>	105MB SyQuest	<b>\$69</b>
88MB SyQuest	<b>\$79</b>	270MB SyQuest	<b>\$79</b>
200MB SyQuest	<b>\$89</b>	230MB Optical	<b>\$49</b>

**LACIE**  
LIMITED  
A QUANTUM COMPANY

To order call toll free:

**800-999-1422**

Mon.-Fri. 9AM-7PM & Sat. 8AM-NOON PST • International 503-520-9000 Fax 503-520-9100 (24 hrs.)  
UK 0800-99-5025 Australia 0014-800-123-007 VISA, MasterCard, American Express, C.O.D. and approved purchase orders accepted.

\* Call for details, conditions, limited money back guarantee, and free offers. Prices do not include shipping and only apply to products shipped within the continental United States. Add sales tax where applicable. Joule, Joule Portable, Quickset, La Cie Team, Silverlining, La Cie and the La Cie logo are trademarks of La Cie, Ltd., a Quantum Company. All other trademarks are the property of their respective companies. All prices, specifications, terms, warranties, descriptions, products and services herein are subject to change without notice or without recourse. © Copyright 1994 La Cie, Ltd. All rights reserved.



# Really Stack Up!

Unlimited  
Toll-Free Tech  
Support

"La Cie's new stackable design... offers several benefits over standard external case designs."

MacWeek  
- October 1994



- ▶ Simple, easy installation.
- ▶ Support hard or removable drives.
- ▶ Easy SCSI ID switching and digital active SCSI termination.
- ▶ Single surge protected power supply supports all modules.
- ▶ All modules removable without reconfiguring system.



## Joule Base Drives

Joule Base Drives stand alone or serve as the foundation to a uniquely expandable Joule Tower. Bases are available with Hard Drive, Optical or SyQuest® mechanisms and include all the Joule advantages.

**\$899**  
1400MB

### 3.5" HARD DRIVES

- Quantum - 2 or 5 Year Warranty

340MB	<b>\$319</b>
540MB	<b>\$369</b>
730MB	<b>\$409</b>
1080MB	<b>\$709</b>
1400MB	<b>\$899</b>

### REMOVABLE DRIVES

- Fujitsu Optical\*

230MB **\$849**  
\* Includes 1 FREE 3.5" Cartridge

### REMOVABLE DRIVES-SyQuest\*

105MB **\$429**  
270MB **\$549**  
\* Includes 1 FREE Cartridge

**JOULE BASE**  
- Without Drive **\$199**

## NOW MAKE YOUR OWN QUALITY SEPARATIONS

## SILVERSCANNER III™

**BETTER THAN EVER...** All new design. Gorgeous color. Fine image detail. Excellent tonal range. Get production quality output from an inexpensive flat-bed scanner with SilverScanner III. Easy for beginners, yet with all the powerful control the advanced user craves.

- ▶ 2400 dpi scanning power!
- ▶ 10 bits per color!
- ▶ One pass scanning!
- ▶ Dynamic color preview!
- ▶ Electronic densitometer, automatic tone adjustment & color histogram - all interactive in preview!

### PACKAGE 1

SilverScanner III with Color It! & Read-It OCR Pro.

**\$1499**

### PACKAGE 2

SilverScanner III with Photoshop & Read-It OCR Pro.

**\$1799**

Transparency Adapter

**\$799**

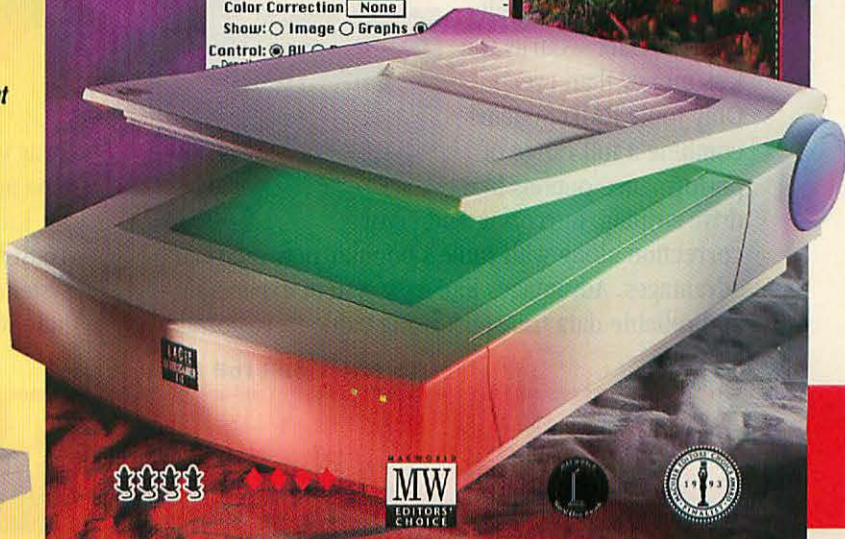


Sheet Feeder Attachment

**\$499**

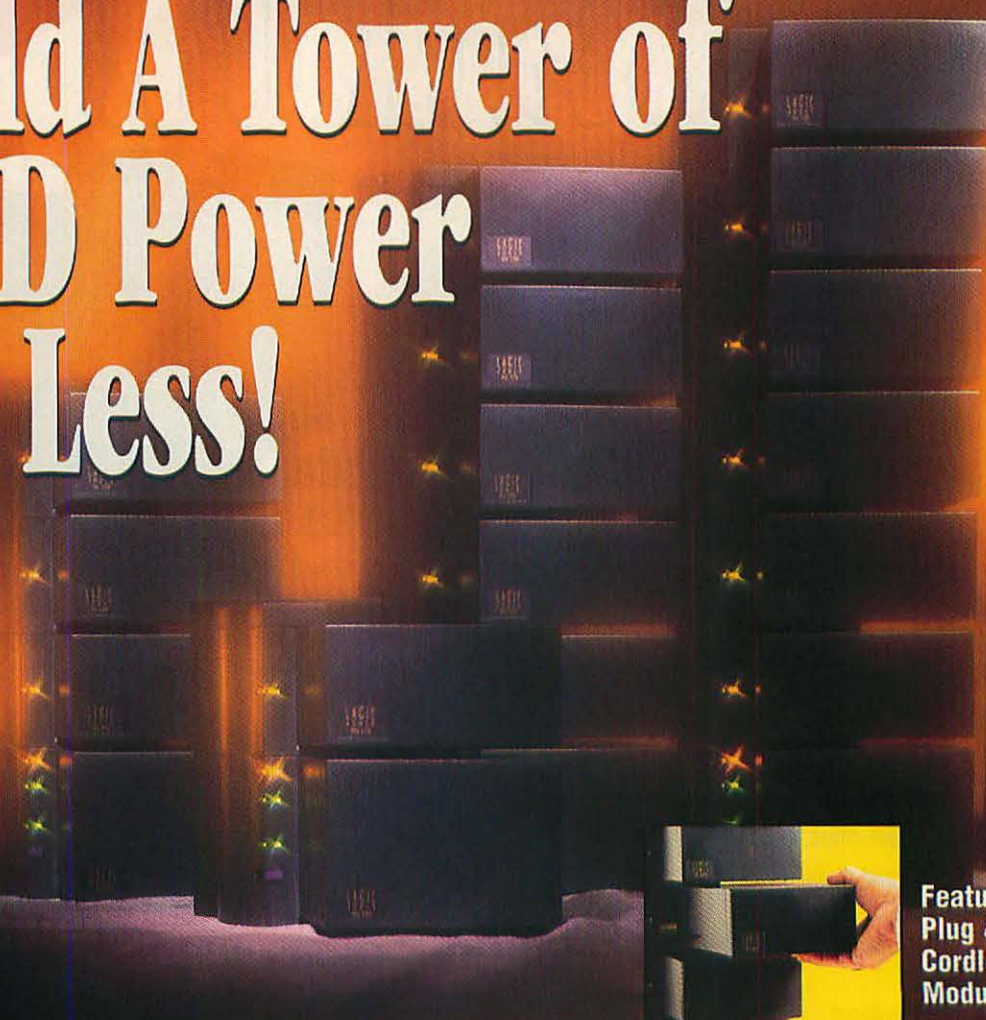


**ALL NEW!**





# Build A Tower of RAID Power For Less!



**Features  
Plug & Play  
Cordless  
Modules...**

**Joule Is The New Standard  
For Performance, Security,  
and Value In RAID Systems...  
Starting At 2.0 GB – **\$1899****

Satisfy your growing appetite for mass storage and dramatically improve data security for less money than ever. Only Joule RAID Systems combine a full range of performance options like drive striping, mirroring and error correction along with Joule's popular new modular advantages. Advantages like easy system expansion and reliable data transport using cable-free, portable



**\$2999**  
**4.28GB**

**\$8999**  
**16.8GB**



**Supports  
Removable  
Media  
Drives Too!**

modules which can be removed, shared or locked away with ease. Joule RAID even lets you add optical, tape and SyQuest modules for further versatility. Joule RAID is available now in systems from 2 to 16.8Gb with levels 0,1,4 and 5 included in each system. Only Joule gives you so much more for so little. Call today for the whole RAID story.

**To order call toll free:**

**800-999-1422**

Mon.-Fri. 5AM-7PM & Sat. 8AM-NOON PST • International 503-520-9000 Fax 503-520-9100 (24 hrs.)  
UK 0800-09-3025 Australia 0014-800-123-007 VISA, MasterCard, American Express, C.O.D. and approved purchase orders accepted

\* Call for details, conditions, limited money back guarantee, and free offers. Prices do not include shipping and only apply to products shipped within the continental United States. Add sales tax where applicable. Joule, Joule Portable, QuickSet, La Cie Term, Silverlining, La Cie and the La Cie logo are trademarks of La Cie, Ltd., a Quantum Company. All other trademarks are the property of their respective companies. All prices, specifications, terms, warranties, descriptions, products and services herein are subject to change without notice or without recourse. © Copyright 1994 La Cie, Ltd. All rights reserved.

**Circle 52 on reader service card**

**LACIE**  
**LIMITED**  
A QUANTUM COMPANY





# The Clone Balancing Act

*How Apple must weigh market growth and competition*

**L**AST NIGHT I DREAMT THAT I was the all-in-one Macintosh. As I glided into a large hall covered with mirrors, my smiling Mac face was reflected countless times. Gazing deep into this infinity of Macs, I was surprised to notice one Mac moving independently of all the others. But I was bowled over when this reflection threw me a question: "Why are you here?" In shock, I replied, "I am the Mac, who are you?" My doppelgänger answered, "Oh, I'm a Mac, too." "That's impossible," I said, "there is only one true Macintosh, and that's me." An impudent snicker was followed by a long pause. "Not anymore. There are others now." The other reflections began to stir one by one. Then I noticed that they didn't look like any Mac I'd ever seen. The room started spinning and I became dizzy.

The Mac is having an identity crisis. What *is* a Mac now that virtual Macs are coming out of the woodwork under clone makers' brands? Even though most industry observers have lobbied for years for Apple to license the Mac, it's still strange to see Macs coming from companies other than Apple. Technically speaking, they *won't* be Macs because Apple will not permit licensees to call their products Macintoshes (although they can claim to run the Macintosh Operating System). With its recent attempts to solve the problem of market share, Apple has gained a new problem: it will have to manage the delicate balance between its two completely new roles—namely, system software provider to third parties and systems hardware competitor with the same parties. Last month I looked at the opportunities and challenges for clone makers. This month I examine the challenges facing Apple.

## Opening Pandora's Mac

Apple has always guarded the Mac as if it were Pandora's box—to open it up might unleash all manner of misery. Apple was reluctant to open the Mac for cards and peripherals until a few years after its introduction, and Apple took more than

ten years before deciding to license the Mac operating system. Apple execs knew that despite all the potential advantages of licensing Mac clones, there were also pitfalls. There are two obvious threats. First, although clones may grow the Mac's market share, some clone sales might come at Apple's expense. Second, clones make it harder to shape the future of the Mac because different companies may offer unique technology variations that Apple as the system software vendor will have to support.

## Clones and Competition

Opening up to clones is a high-stakes game that will require Apple to manage complex new licensing relationships with finesse. Apple must start by treating its licensees like customers; after all, clone

also potential competitors. By relying on its highly recognized company and product brands, Apple should continue to sell its own systems and succeed in its established markets. Apple will continue to sell strongly in the consumer and education markets. It will also have to create a new strategy for succeeding in business markets, which presents two immense challenges: sending a clear marketing message and targeting the right markets.

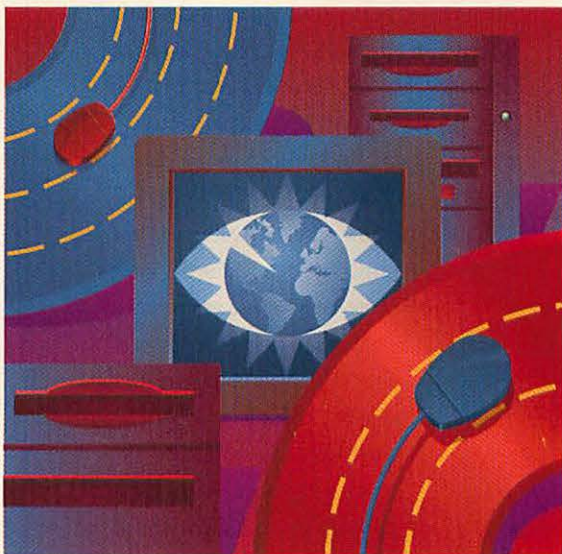
**The Market Is the Message** In the past ten years or so, while the Mac was competing only with DOS and Windows PCs, Apple had trouble creating a meaningful marketing message. Apple's inability to articulate the unique strengths of the Mac vis-à-vis the other platform has been a source of frustration to many observers (see *The Iconoclast*, in this issue).

Only in the last couple of years has Apple started clearly marketing the Mac's strengths in ways that point out the benefits to users—and only sporadically at that. Now Apple has a much more complex challenge: it must continue to promote the advantages of the entire Mac platform, but it must also persuade hardware customers that Macs from Apple offer unique benefits—all without sowing seeds of doubt about the compatibility and worthiness of Mac clones.

**Targeting Markets** Beyond creating the message,

Apple must be careful about when it chooses to compete directly with clones. When clones pioneer new concepts, Apple must not go after the same business opportunity without first weighing the cost to its partners/competitors. Apple has a well-known tendency to cannibalize concepts and markets created by its third-party developers. Cannibalization would be a dangerous tactic with clone vendors, who must make major investments in development, marketing, and distribution

*continues*



makers will be paying money to license the Macintosh Operating System. Some traditionalists within Apple may be inclined to view clone vendors as free-loaders who don't rightly deserve to develop products based on Apple's crown jewels. This would be a dreadful mistake; Apple can ill afford to treat business partners with contempt. The Mac's long-term health depends on the coveted new market share that Apple's licensees will likely provide.

At the same time clone vendors are



to succeed. Should Apple attack markets and concepts being pioneered by its licensees, the chilling effect on the growth of clones in the Mac market could ultimately defeat the purpose of licensing the OS in the first place. Still, Apple must pursue its legitimate business interests as a computer maker in the Mac market. This tightrope act will require an amazing amount of dexterity. And Apple must start identifying areas in the Mac market where it will focus its attention.

### Avoiding Technological Anarchy

The second and greatest threat to the Mac market as clones multiply will be the potential for confusion on standards and compatibility. Apple must lead the technological direction of the platform and ensure that Mac-compatibles are indeed a cohesive platform. The Mac platform has always enjoyed relative simplicity when compared with PCs. Although Apple has occasionally created unnecessary complexity in its bus and memory

configurations, there has been nothing like the variety of hardware "standards" and confusion in the PC market. It would be a shame if Macintosh customers had to worry about compatibility with sundry hardware and software options.

There is reason for hope. Because Apple is actively licensing the Mac OS, it has much more influence than IBM did when clones appeared in the PC market. Even so, challenges are inevitable. To address customer needs and give their computers unique strengths, clone makers will want to introduce new technologies and solutions. If not supported by Apple, these new technologies might create a divergence that could lead to competing Mac standards. To meet this challenge Apple must find a new leadership model to support innovation but avoid useless complexity. For example, Apple's system software group and the company's various computer product groups will have to develop a protocol for working together to best serve the interests of the Mac platform as a whole. Apple must also be more careful about introducing technologies: it must avoid promoting new technologies that developers don't support, but it must know when to persevere with technology initiatives that are strategic—even when the clone vendors resist them.

As far as Apple has come in the past few years in transforming itself to meet market challenges, it must go farther. Nothing points this out more clearly than clones. It all boils down to managing Apple in a much more sophisticated way to deal with the new complexities that Macintosh clones create. Apple has at long last become a brilliant tactician, producing elegant systems at appealing prices; it must now continue to evolve and become the strategic architect of its destiny.

### The Iconoclast's Farewell

This issue marks the departure of *The Iconoclast* from the pages of *Macworld*. We bid farewell to Steven Levy's monthly column after nearly ten years. Steven has followed the Mac since its introduction and remains a steadfast advocate of the Mac's excellence. Steven is moving to *Newsweek*, where we're sure he'll continue as a thoughtful observer of technology and what it means to ordinary people. Although we are retiring *The Iconoclast* column, we aren't retiring Steven, as he continues to maintain his relationship with *Macworld*. From time to time his writing will resurface in these pages to provide the same insightful and humorous commentary our readers have enjoyed for nearly a decade. **m**

# Experts Agree... Virex® Is Clearly Number One!



Macworld July 1994  
Virex®



MacWeek June 1994  
Virex Administrator™



Macworld May 1994  
Virex®



Virex with SpeedScan™ is number one because it's the fastest, most accurate virus protection. It's the only product Macworld Magazine found that protects against every Macintosh virus and Trojan horse. Macworld Magazine said that patent-pending SpeedScan technology "... puts it ahead of the pack." Now it's faster with native Power Macintosh support! Virex proactively protects your Macintosh, even scanning compressed files, and can instantly be updated for new viruses. Optimized for compatibility, Virex provides the most complete, easy-to-use protection.

For network virus protection, Virex Administrator™ remotely installs and updates Virex, scans for viruses on any networked Macintosh, and provides immediate notification of virus attacks. It even repairs infected files — all from one central location!

Virex. It's the fastest, most complete protection ever. Just ask the Experts.



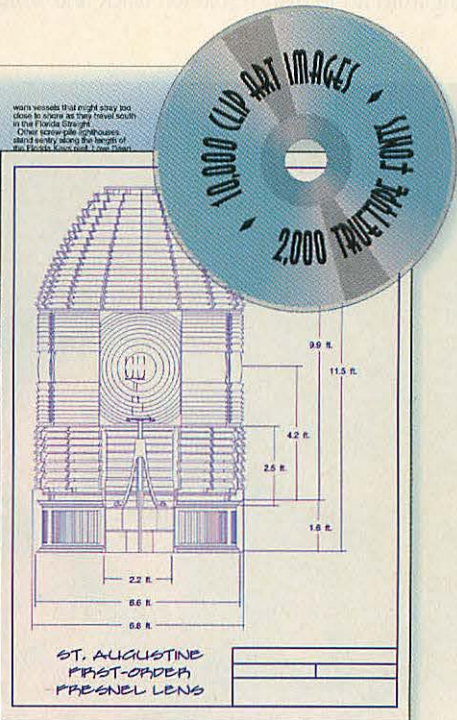
**DATAWATCH** 508-988-9700 ©1994 All rights reserved. Datawatch and Virex are registered trademarks and SpeedScan and Virex Administrator are trademarks of Datawatch Corporation. Other company and product names are trademarks of their respective owners.



# YOUR ONE-STOP GRAPHICS SHOP

## CANVAS Does it All!

- Newsletters and Flyers
- Logos and Advertising Design
- Free-form Drawing and Painting
- Business Graphics, Flow Charts & Diagrams
- Floor Plans, Architectural & Technical Drawings
- On-Screen Presentations and Slides
- Retouch, Color or Trace Scanned Images
- Color Separations
- Spectacular Special Effects



"... the single graphics program to fit most illustration needs."  
- MacUser

**"With CANVAS™, 10,000 clip art images, 2,000 fonts and Power Mac™ acceleration, you'll always finish first."**

### THE EASY-TO-USE DRAWING PROGRAM FOR BUSINESS, DESIGN, TECHNICAL ILLUSTRATION AND MORE!

Canvas gives you the power to complete any graphics project without bouncing around between half a dozen applications. With its award-winning, intuitive interface, Canvas lets you draw, layout, paint, present, apply a multitude of sophisticated special effects — and take your work all the way to finished film.

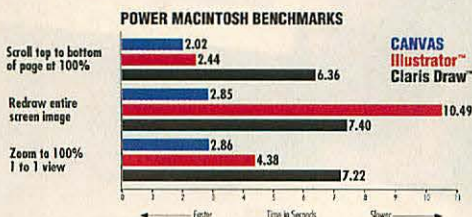
### SO WHAT ARE YOU WAITING FOR?

Run today to your favorite software retailer or call us and get your hands on the best graphics software buy around.

"... the best object-oriented drawing program money can buy." - MacWEEK

"... this multi-purpose drawing and painting application is power-packed." - Computer Pictures

"... when it comes to text-handling, Canvas' features rival those of Illustrator." - MacUser



### EXCLUSIVE NEW CD-ROM JUMP STARTS YOUR CREATIVITY

Canvas comes with a premium CD jam-packed with 10,000 clip art images ready-made for your newsletters, signs, sales presentations and diagrams. These fully editable images make a perfect starting point for any graphics project! You also get over 2,000 professional TrueType™ text, display and novelty fonts — more than any other package at any price!

**\$269**  
Estimated Street Price

**\$149.95**  
Competitive Upgrade Price

### CANVAS INCLUDES

- Unlimited Free Technical Support
- 60-Day, Risk-Free Money-Back Guarantee
- CD-ROM with 10,000 clip art images & 2,000 TrueType Fonts

### COMPETITIVE UPGRADE

- Simply show us proof of ownership of any Macintosh graphics program and chop nearly \$250 off Canvas' already low \$399 price! Call today...

**1-800-733-6322**



**Deneba Software**



## Apple Peripherals

Now offices that have different kinds of computers can rely on a single

printer: the new Apple LaserWriter® 16/600 PS. This high-quality, fax-capable printer lets Macintosh®, DOS, Windows and UNIX® software users all print at a crisp 600-dot-per-inch resolution. Thanks to Apple's unique FinePrint™ technology, everyone's work comes out with sharp-looking type and graphics. Add an extra 4MB of memory, and you can take advantage of PhotoGrade™ technology, which significantly enhances everything from art to high-resolution black-and-white photography. What's more, the LaserWriter 16/600 PS prints at the sizzling rate of 17 letter-

A photograph of two men in an office setting. The man on the left, wearing glasses and a light blue shirt with suspenders, holds a printed document titled "OUR CREDENTIALS". The man on the right, wearing a white shirt and a patterned tie, also holds a similar document. Both documents feature a portrait of a man, a pie chart, and a small illustration of a classical building. In the foreground, the top of an Apple LaserWriter 16/600 PS printer is visible. The background shows a desk with papers and a hanging lamp.



size pages per minute, making it the fastest printer in its price range. And with the optional fax card, anyone on the network—yes, anyone—can send a fax from his or her desk. It's as easy as selecting the Fax option in the Print dialog box. You can also receive pristine plain-paper faxes at the printer. All of this cross-platform business goes on unseen by network users, thanks to built-in LocalTalk® and Ethernet support (including EtherTalk®, TCP/IP and Novell IPX support) and automatic emulation switching. Which means the only time the Macintosh, DOS, Windows and UNIX software users at your office might meet each other is at the printer.



Can you tell  
which document came  
from a Macintosh and  
which came from a PC?  
Our network printer can.

**The new Apple LaserWriter 16/600 PS**

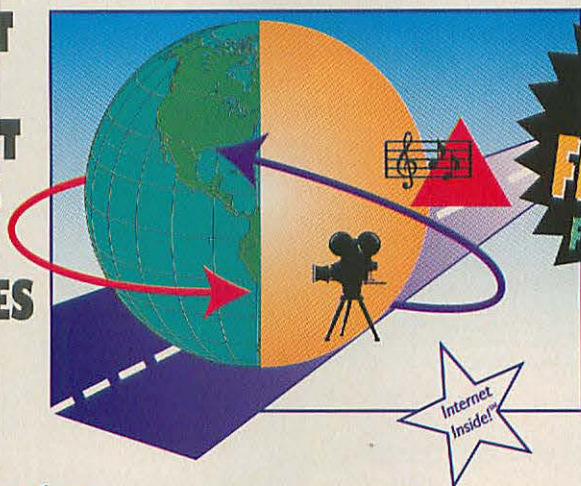




# 5 MINUTES TO FREEDOM

## INSTANT INTERNET ACCESS

**CONNECT  
TO THE  
INTERNET  
IN LESS  
THAN  
5 MINUTES**



**7-DAY  
FREE TRIAL  
FOR MACINTOSH®**

**Instant InterRamp<sup>SM</sup>**

Forget on-line services; InterRamp connects you directly to the Internet. That's the BIG difference.

In less than 5 minutes, you'll have access to MOSAIC, Gopher, WAIS, Veronica, Archie, ftp, E-Mail, NEWS and other hot Internet applications. You have the entire world-wide Internet at your fingertips.

Just a few clicks of your mouse, you're connected.

All applications are automatically configured for immediate use. It's that SIMPLE.

We're so sure you'll love Instant InterRamp, we'll let you try it absolutely FREE without any obligation.

All you need is a computer and a modem; we'll send you the Instant InterRamp software.\*

Also, PSI offers high-performance LAN Internet solutions for your organization. Ask our sales representative for more information.

PC & UNIX  
VERSIONS ARE  
ALSO AVAILABLE

CALL NOW FOR FREE DEMO  
**1.800.PSI.0852**  
PREFERRED CUSTOMER NUMBER #00141



FAXBACK INFO: 1.800.fax.psi.1 • INTERNET E-MAIL: [interramp-info@psi.com](mailto:interramp-info@psi.com) • WORLD WIDE WEB: <http://www.psi.net>

DOWNLOAD THE SOFTWARE FROM THE INTERNET: <http://www.psi.net/interramp/>

\* Restrictions apply. FREE trial requires credit card for verification purposes only. • PERFORMANCE SYSTEMS INTERNATIONAL, INC. • 510 HUNTHAM PARK DRIVE • HERNDON, VA 22070 • USA • ©1995 Performance Systems International, Inc. PSINet and the PSINet logo are registered trademarks. All other trademarks and service marks are used with their permission and remain the property of their respective owners.

Circle 95 on reader service card



M A Y 1 9 9 5

# Letters

## We Don't Do Windows 95

**M**ACWORLD'S ARTICLE "THE NEW Windows Threat," by Galen Gruman (February 1995), could not have been written better by Bill Gates himself. After reading that article, if I were a first-time computer buyer thinking about Mac versus PC I would definitely purchase Windows/Pentium. You have done to me, a dedicated Mac user, what I thought no one could: make me (almost) feel like I made a mistake buying a Mac.

*John Paul DuBois  
Tulsa, Oklahoma*

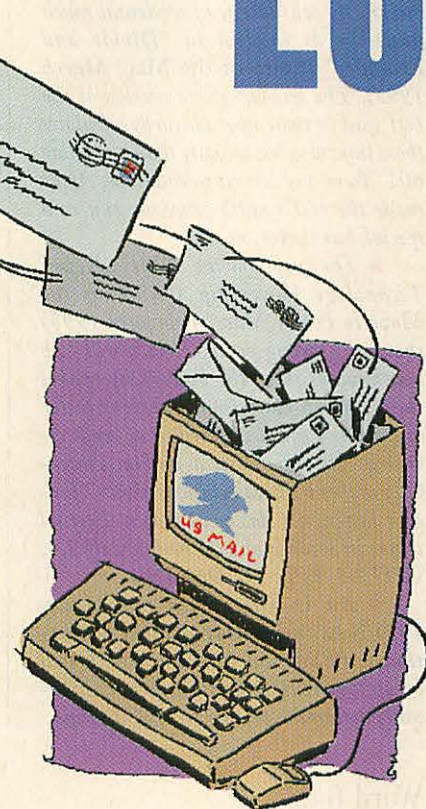
**J**UST FINISHED READING "THE NEW Windows Threat" in the February *Macworld*. Mr. Gruman mentioned that Windows has pushed ahead, while "the Mac interface of today bears a very strong resemblance to that of a decade ago." Maybe the Mac OS was just done correctly from the beginning.

*Kieran Chapman  
South Attleboro, Massachusetts*

**I**HAVE NEVER BEEN STRUCK BY FEAR while reading an issue of *Macworld* until now. OK, so the new Windows platform is tough to beat; I have enough confidence in Apple keeping the edge in operating systems. But then you hit me with another article that tells me that a Pentium is now faster than a Power Mac in many instances. Please give me hope—I'm ready to run for the hills.

*Todd Horning  
Paoli, Pennsylvania*

Don't give up the ship just yet—the Pentium we tested was faster than a Power Mac 8100/110 in only half of our real-world tests. As both platforms continue to mature, performance should seesaw back and forth between the Power Mac and Pentium. In fact, the first Pentiums were slower than the first Power Macs, as we reported in our May 1994 issue (see "The Power Macintosh Arrives"). We're expecting the next generation of Power Macs, due this summer, to reclaim the performance title.—Ed.



## Encrypto De Facto

**H**OW COULD STEVEN LEVY WRITE A column about digital signatures and public-key encryption (*The Iconoclast*, February 1995) and fail to mention Phil Zimmermann's PGP? PGP is by far the most widely used encryption program and the de facto standard on the Internet. Readers (within the United States only, thanks to the silly export laws) with Internet access can obtain PGP 2.6.2, including the Macintosh-specific MacPGP, by telnetting to net-dist.mit.edu, using anonymous FTP and following the instructions. It's also available from CompuServe (Go NCSA) and a number of other sources.

*Mark G. Scheuern  
Auburn Hills, Michigan*

## In Defense of Clarus

**I**'M WRITING IN DEFENSE OF CLARUS Systems Group's product, which was panned in the February 1995 *Conspicuous Consumer* column.

As someone with extreme sensitivity to EMF fields, I can vouch for the effectiveness of Clarus's product. I don't know the science behind it, but I do know it greatly reduced the symptoms of headache, vertigo, nausea, and fatigue that I suffered.

Clarus cites studies showing both a reduction of perceived stress in subjects and a reduction in the intensity of EMF fields, which the company will provide if requested.

I don't know who the "expert" was that Deborah Branscum consulted, but considering the hostility in the industry to even the notion of any ill effects from EMF fields, despite mounting evidence from 16 years of serious scientific study, his response was not surprising.

*Randy Perry  
Harrisville, Rhode Island*

I consulted with Louis Slesin, who edits and publishes both *Microwave News* and *VDT News*, about the Clarus Systems Group product. Slesin has done a great deal to publicize the potential problems of electromagnetic exposure and has no ax to grind when it comes to related products.—Deborah Branscum

## ClarisWorks 3.0

**B**ELIEVE THERE IS A SOLUTION TO THE limitation discussed by Tom Negrino in his review of ClarisWorks 3.0 (*Reviews*, February 1995). Mr. Negrino objects that Claris missed the opportunity to revise the outline feature, so that you could have "an outline and regular text in the same document."

For that portion of the word processing document you wish to outline, draw a text frame within the WP environment by holding down the option key and drawing a frame. You can then select Outline View within this text frame. Only the text within the frame will contain outline format.

*Andrea Posner  
Lutz, Florida*

*continues*



# YOU WANT SPEED?

## Consider The Options

You've got a Quadra or a Centris, and it's just not fast enough any more. You know that everywhere you look people are talking about the PowerPC. But you also know that buying a new computer and upgrading your software can cost a lot of money.

## Now You Have A Choice

The DiIMOCache '040/50 Accelerator. It will make your Macintosh as fast as a PowerPC, even in native mode. And you won't have to buy new software. The best part is that with a retail price of only \$899, the DiIMOCache '040/50 Accelerator will cost you hundreds, possibly even thousands of dollars less. The choice is clear. Get the DiIMOCache '040/50 Accelerator for your Macintosh today!

Quadra 700 with DiIMOCache 040/50MHz

PowerMac 6100/60

Quadra 700 with  
Apple Upgrade Card

Quadra 700

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0  
Number of times faster. Longer bars are better.

## Compare The Results

The DiIMOCache '040/50 is a 68040 accelerator boosted to 50MHz with 128K Static RAM Cache. Its Slot-Free design keeps your PDS and NuBus slots free for other cards. Several models support the Quadra 610, 630, 650, 660AV, 700, 800, 900, 950 and Centris 610 and 650. Soon shipping for more 68040 Macs! Call now to get a full report on our benchmark tests done with today's graphics and desktop publishing software.



**DiIMO Technologies, Inc.**

**800/503-4466**

All DiIMO products can be purchased through authorized DiIMO resellers. The DiIMOCache '040/50 Accelerator carries a 30-day money back guarantee, a 3-year warranty and excellent toll-free tech support.

©1995 DiIMO Technologies, Inc. DiIMO® and DiIMOCache® are registered trademarks, and Slot-Free™ and the DiIMO logo are trademarks belonging to DiIMO Technologies, Inc. All other trademarks and trade names mentioned herein belong to their respective owners.

Circle 299 on reader service card

## LETTERS

### CORRECTIONS

■ *The correct toll-free number for PictureWorks is 800/304-5400 (New Products, March 1995).*

■ *The PowerPC 601 CPU in Apple's Power Mac upgrade cards does not incorrectly calculate transcendental math functions as implied in "Divide and Flounder" (State of the Mac, March 1995). The less-expensive version of the 601 used in those upgrade cards calculates those functions less speedily than a regular 601. To ensure correct calculations, Apple made the 601's math processor run in a special, but slower, mode.*

■ *The graph for the 80MHz Newer Technology PowerClip ("Making the Move to Power Mac," February 1995) shows the wrong results. Macworld Lab benchmarks show the PowerClip makes the 7100/66 run about 5 percent faster overall, not equal in speed to an unaccelerated 7100/66 as shown, and the PowerClip makes FPU calculations about 7 percent faster, not slower as shown. (Actual times in seconds should be Overall 2.3, CPU 2.3, FPU 3.0, Disk 1.3.)*

■ *An In Brief item in January 1995 News mistakenly said that connect-time to PBS Online would be free. It will be up to participating stations to individually determine pricing for PBS Online.*

## Word 6.0

THE FEBRUARY 1995 NEWS ARTICLE "Word 6.0 Performance Disappoints" missed the major point: this is not Word for the Macintosh.

Word 6 does not disappoint, it insults. It slaps every Macintosh owner right in the face as a poor copy of Word for Windows. If I wanted that, I would have bought a DOS machine. But I wanted something better. That is why I bought the Mac in the first place.

Word for the Mac as we knew it is gone. Microsoft has decided that I can no longer have my superior program. I must settle for something less. A great deal less. It is called Word for Windows.

Steven Joseph Fenner  
Gahanna, Ohio

IF YOU NEED AT LEAST AN 040 MAC TO run Word 6.0, shouldn't Microsoft have made this clear in their upgrade notices and ads? Supposedly it will now, but this is little consolation to the thousands of unsuspecting and trusting Word users who upgraded to the latest version.

Fred Schreiber  
New York, New York

THANK YOU FOR YOUR HELPFUL ARTICLES on Word 6.0 in the February issue. As a student, I would like to underscore the incredible new features, which, in my opinion, more than justify the price to upgrade, which is steep even at academic prices. I would recommend reading through the new features before starting to write any lengthy papers, to maximize saved time. Thanks, Microsoft!

Carl Levinger  
Van Nuys, California

## Screen-Saver Controversy

IN THE FEBRUARY 1995 DESKTOP CRITIC, David Pogue stated that the engineers he interviewed have told him it is "virtually impossible" for a static image to burn into a color monitor. Really? I don't know what they're teaching in engineering school nowadays, but let me offer some real-world experience. For several years I worked for a company that manufactured touch-screen-operated information kiosks, containing a 14-inch, VGA color monitor. The kiosks were designed to operate 24 hours a day, displaying the company logo on screen until activated by a touch. We found that kiosks returned for service after a few months in the field did indeed show screen burn-in. It was so pronounced that the company logo was obvious on a monitor that was turned off. While it's unlikely that an ordinary user would leave the same screen on for weeks or months, I would guess some phosphor damage may occur at lesser time intervals. At any rate, I would not be so quick to discount screen burn-in as a potential, though unlikely, hazard.

L. Richard Bruursema  
Olathe, Kansas

We've all seen PC monitors burned in, and we've all seen older Macintosh monitors burned in. But, as engineers at NEC and Apple told me, modern Macintosh monitors are a different story. I was told that you'd have to leave your monitor on, displaying an unchanging image, for about two years straight before you'd see burn-in.

Furthermore, there's no debate whatever about my real point: the best protection for your screen is not a screen saver, which only continues to bombard the monitor's phosphors. It's blackness. Turn the thing off when you're not using it.—David Pogue

## Vistapro 3.0

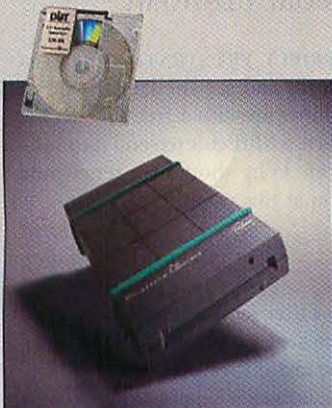
YOUR REVIEW OF VISTAPRO IN THE February 1995 issue did a great injustice. Vistapro has a patch for some of the problems mentioned, available on continues



# YOUR NEXT HARD DRIVE IS A PINNACLE OPTICAL.

Have you outgrown your hard drive? Need more storage? Go optical. There is no doubt that optical is the storage solution for the future. And Pinnacle Micro is the optical storage leader. Optical is fast - fast as most hard drives. Optical is removable - fill up a disk... just add another one. Optical is reliable - no data loss. No head crashes. Even better, optical media costs less than 15 cents per megabyte.

Now you can store unlimited amounts of data for endless applications such as graphics, imaging, digital audio, digital video, CAD/CAM, database, network storage and data archiving. You can even transport Megabytes and Gigabytes of large files within seconds just by handing a disk from one person to another. Or place your disk in a Fed-Ex package and ship it for next day delivery.



Tahoe™ 230 MB  
3.5" Portable Optical Drive



Sierra™ 1.3 GB  
5.25" Optical Hard Drive

Pinnacle offers the industry's fastest 3.5" and 5.25" optical drive solutions, the most affordable Recordable CD system, and network optical library systems that range from 20 Gigabytes to over 1 Terabyte for on-line, centralized storage. Pinnacle's award-winning line of optical storage solutions will increase productivity in every environment, from personal computing to the largest global network.

So before you buy your next hard drive... go Pinnacle optical. A storage solution you will never outgrow.

All trademarks and Registered Trademarks of Their Respected Owners.

**TO REACH THE PINNACLE CALL: 800-553-7070**

Tel: 714-789-3000 Fax: 714-789-3150

Circle 115 on reader service card

**PINNACLE MICRO**  
THE OPTICAL STORAGE COMPANY



# Put a PC inside your Mac



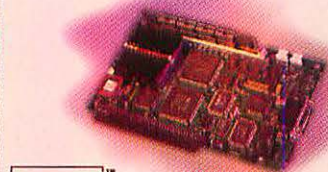
## Introducing DOS on Mac

The fast, affordable way to run DOS and Windows™ on your Macintosh® computer

Reply's DOS on Mac card:

- Runs DOS and Windows at true 486 speed—not through software emulation
- Turns your Mac into a powerful dual-microprocessor system
- Uses Mac peripherals—even shares your Mac's memory
- Offers optional networking software for NetWare and TCP/IP compatibility
- Offers optional Sound Blaster™ SB16 for PC multimedia compatibility
- Prices start at \$495

**Call 1-800-801-6898**



**Reply Corporation**  
The System Enhancement

Reply Corporation, DOS on Mac, and the Reply logo are trademarks of Reply Corporation. Macintosh is a registered trademark of Apple Computer. All other product names referenced herein are trademarks of their respective companies. Reply Corporation Phone: 408-942-4004 Fax: 408-956-2793.

## LETTERS

America Online since September 1994. Vistapro now offers background rendering. If you bought the Vistapro CD, MakePath Flight Director comes with the program. This makes it extremely easy to make the QuickTime movies bank when "flying." It is possible to do this even without MakePath Flight Director, but it is not as easy. Banking movies does not even require the patch, and was included in the previous version.

Last but not least, Vistapro has many levels of tree rendering. There are many different ways to render the trees, and if they are not rendered at the best quality, they might not seem as realistic.

Aaron Powers  
Baldwinsville, New York

You're right—MakePath Flight Director is included in the CD-ROM version of Vistapro, and background rendering is now a feature. My review was based on the disk version that the company sent for review; it didn't include background rendering.

While you can bank the camera when making animations in Vistapro, to do so you must use the program's scripting language. Scenery Animator, on the other hand, provides a menu command that automatically banks the camera as it "flies" through a landscape.

I did render the various trees at the best quality, and I still found them less realistic than Scenery Animator's trees.—Erfert Fenton

## Bravo, Apple

I WAS SORRY TO READ ABOUT MARK Thomas's trials and tribulations in obtaining System 7.5 from Apple (*Letters*, February 1995). I was also struck by the extreme contrast between his negative experience and the delightful situation I encountered.

In November 1994, I purchased from a local dealer a Quadra 630 with System 7.1.2p installed. In early December, I returned to the store, and the sales clerk who sold me the 630 gave me a form he had forgotten to include with my system. It was a special upgrade offer for System 7.5 direct from Apple. Apparently, Apple had since started shipping System 7.5 with the latest Quadra 630s, and wanted to send me System 7.5 for *free* (plus \$10 for shipping and handling) as long as I ordered by the end of the year. Who could refuse such an offer? I wrote a company check on December 15, and the System 7.5 package arrived on December 23. In fact, Apple's System 7.5 Upgrade Office in Buffalo responded so quickly that it shipped the upgrade *before* even cashing my check! It was a wonderful Christmas present.

Certainly, I can sympathize with the

plight of Mr. Thomas and those who share his unfortunate situation. I also recognize that problems can occur with service and support from any company and that Apple is no exception. In my case, however, I can only offer the highest kudos for the service Apple provided to me and my company. Bravo, Apple!

Alan V. Michaels  
Victor, New York

## Obloid Factoid

ALMOST EVERY PIECE OF SOFTWARE now on the market can draw round-cornered rectangles. But gee, that's a mouthful. We can do better. I suggest *obloid* for the following reasons: (1) it's a portmanteau word suggestive of *oblong* and *ovoid*; (2) it has the same number of letters as *square* and *circle*; (3) it isn't being used for anything else; and (4) as far as I can tell, nobody owns it.

Richard Russell  
Madison, Wisconsin

## Where's Our CD-ROM?

IT'S TERRIBLY FRUSTRATING TO GO to the store and see the latest issue of *Macworld* show up with a free CD-ROM included. Is it so difficult to send it to subscribers, too? Why should we renew our subscription at this point?

John Austin  
Spokane, Washington

The free software seen on newsstand copies is a special promotion designed to sell newsstand copies, which are also sold at three times the price of subscriber copies. Because it is prohibitively expensive to mail out the software with the magazine, we only offer the promotional software on request. Provided that the software is still available, subscribers can receive it by writing directly to *Macworld*. Specify the name of the promotional disk or CD you saw on the newsstand, enclose a check or money order for \$1.50 shipping and handling for each item ordered, payable to *Macworld*, and send to Macworld Newsstand Promotions, 501 Second St., San Francisco, CA 94107.—Ed. **m**

Letters should be sent to *Letters*, *Macworld*, 501 Second St., San Francisco, CA 94107; via fax, 415/442-0766; or electronically to CompuServe (70370,702), MCI Mail (294-8078), America Online (Macworld), eWorld (Macworld), AppleLink (Macworld1), or via the Internet (letters@macworld.com). Include return address and daytime phone number. Due to the high volume of mail received, we can't respond personally to each letter. We reserve the right to edit all letters. All published letters become the property of *Macworld*.



# AGFA STUDIOSCAN I



# AGFA STUDIOSCAN II



# AGFA ARCUS II



# AGFA VISION 35



# AGFA HORIZON PLUS



# AGFA SELECTSCAN



## OPTICAL RESOLUTION

300 x 600

400 x 800

600 x 1200

3175 x 3175

1200 x 1800

720 to 4000 ppi

## BITS PER PIXEL

24

30

36

36

36

48

## MAX SCANNING AREA (TRANSMISSIVE)

8.5" x 14"  
(8" x 10")

8.5" x 14"  
(8" x 10")

8.3" x 14"  
(8" x 10")

(40 x 40 mm)

11.7" x 16.5"  
(9.5" x 10")

8.3" x 14"  
(8" x 10")

## BUNDLED SOFTWARE\*

Photoshop™ LE  
FotoTune LE  
FotoLook  
FotoSnap

Photoshop LE  
FotoTune Light  
FotoLook  
FotoSnap

Photoshop  
FotoTune Light  
FotoLook

Photoshop  
FotoTune  
FotoLook

Photoshop  
FotoTune  
FotoLook

SelectScan 1.0  
FotoTune  
FotoLook

## TRANSPARENCY MODULE

Optional

Optional

Standard

N/A

Standard

Standard

## ADF (AUTOMATIC DOCUMENT FEEDING)

Optional

Optional

N/A

N/A

N/A

N/A

## PRODUCT PROFILE

Entry-level  
color scanner

Enhanced  
entry-level  
color scanner

Advanced desktop  
color scanner

Production-capable  
35 mm color  
slide scanner

Versatile  
large-format  
color scanner

Top-quality color  
production scanner

IF YOU DON'T SEE IT,  
YOU DON'T NEED IT.

Looking to buy — or sell — a new color scanner? Only Agfa can give you a choice like this, from our easy-to-use, entry-level StudioScan series to the revolutionary new SelectScan for high-end color production.

Each of these scanners is designed to compete at the top of

its category. And each one comes with Agfa scanning and color management software you just won't find anywhere else. They also come with another Agfa exclusive — our new, 42-page *Introduction to Desktop Scanning* — which takes you, step-by-step, through the entire scanning process.

If you're in the market, you can see why it pays to buy Agfa; if you're a dealer, you can see why it pays to sell Agfa. Because no matter what you need a scanner for, your best choice is the one with our name on it. If you're interested in receiving scanner literature, call 1-800-685-4271, ext. 1843, or fax (508) 583-4168.

**AGFA**   
The complete picture.

\*SelectScan software Mac only. All others Mac and PC. Photoshop is a trademark of Adobe Systems Incorporated, which may be registered in some jurisdictions. AGFA and the Agfa rhombus are registered trademarks.

Circle 158 on reader service card



# Introducing *The Only* Ink Jet Printer Worthy of Your Macintosh.



Here's an ink jet printer of a different color. It's the amazing EPSON Stylus COLOR, and it offers dramatically better printing than all the other ink jet printers on the market—at a surprisingly affordable price. The EPSON Stylus COLOR is the world's only color ink jet to deliver output of 720x720 dots per inch.

That's why MACWEEK said, "At 720 dpi, it provides by far the best output of any printer in its class." So, for well under \$599, you'll print scanned images that seem photographic, charts and graphs that jump off the page, and razor sharp black and white text. You'll also get the same level of quality and dependability we've been building into EPSON printers for over 15 years. To see it all for yourself, call the number below for the name of your nearest EPSON dealer. And experience the first ink jet worthy of your Macintosh.

## EPSON

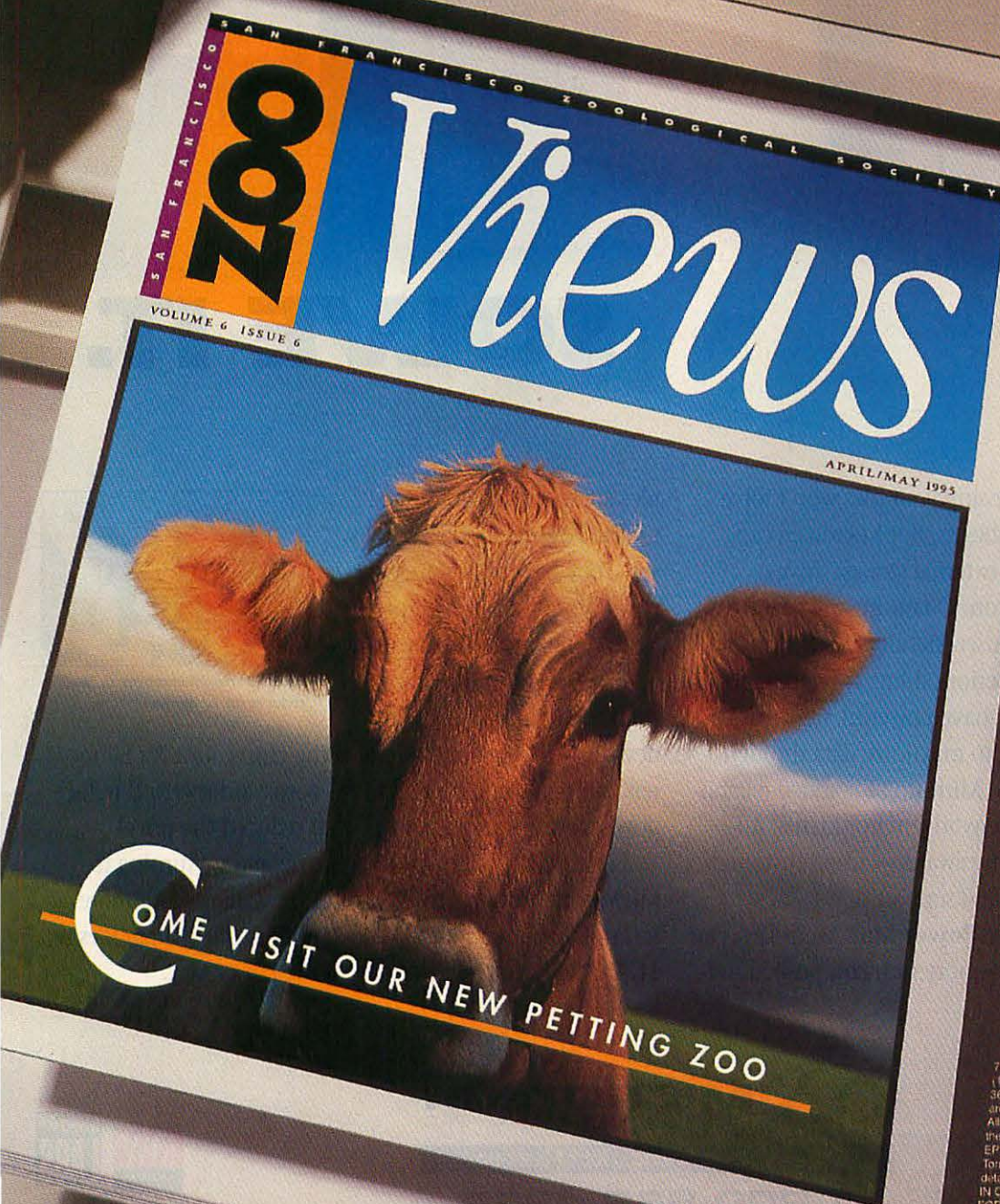
1 • 8 0 0 • B U Y • E P S O N  
E x t . 3 1 2 5



To bring the best out of your EPSON Stylus COLOR printer, insist on genuine EPSON ink cartridges.



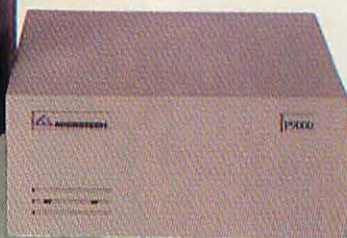
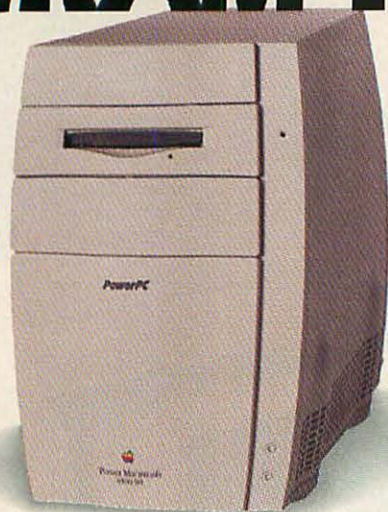
Well Under \$599 • The EPSON Stylus COLOR



720 dpi printing requires EPSON coated paper (12.5¢ MSRP sheet). Price may vary. Also prints 360 dpi on plain paper. EPSON and EPSON Stylus are registered trademarks of SEIKO EPSON CORP. All other trademarks, or registered trademarks are the properties of their respective holders. ©1995 EPSON AMERICA, INC. 20770 Madrona Ave. Torrance, CA 90503. For dealer referral or warranty details, call 800-BUY-EPSON (800-289-8776). IN CANADA, CALL 800-463-7766. FOR LATIN AMERICA, CALL 305-263-0092.



**STUFF IT.  
SQUASH IT.  
CRUNCH IT.  
SQUEEZE IT.  
CRAM IT.**



**SOLVE IT.**

**Expanded Storage.** Compressing your files won't solve your Power Mac's capacity problems. But Microtech can. Our high-quality internal and external storage drives include proven mechanisms from Quantum and Seagate. DiskFORCE, a feature-packed, user-friendly formatting and partitioning software. And superior cabling for maximum speed, minimal errors. We also have powerful, new RISC-based RAID solutions: Striping to maximize data throughput, and Mirroring for added reliability in network environments. All backed by award-winning customer service and support.



Internal and external storage solutions from 1GB to 9GB.

**New Power Mac Memory.** Our PowerMemory non-composite mod-

ules are specifically designed for the PowerPC / RISC processor. They have a 4k refresh capability for improved processor efficiency. And by using 16M DRAM, and removing unneeded buffers and TTL devices, we were able to reduce the chip count for better reliability; reduce the height for better airflow; and reduce power consumption. And all that reduced the price!

**Let's talk.** Find out why more people are turning to Microtech for their capacity solutions. Call now for more information about our 8MB to 256MB memory upgrades or 1GB to 9GB storage upgrades for the Power Mac.



One-inch height improves airflow, reduces risk of thermal failure.



Storage. Memory. And a lot of back-up.

**1-800-626-4276**

Circle 129 on reader service card



# MacBulletin

## 🔴 **First 604-Based Power Macs Due**

**Soon** Apple plans to ship the first PowerPC 604-based Power Macs in midyear, according to Steve Manser, Apple's vice president in charge of desktop systems. That's the same time frame Apple has announced for the first Power Macs that use the PCI bus instead of NuBus. For more details on the 604, see "The 604 Advantage," *Power Mac News*, in this issue.

## **Up to Nine New Clone Makers Expected This Year**

Apple expects another three to nine clone makers to ship licensed Mac clones this year, according to Mary Ann Cusenza, Apple's treasurer. Apple will not reveal who the likely clone makers are, although it says it has signed up new Mac OS licensees. For more details on the three announced clone makers, see "Pioneer Unveils AV Mac Clones," *News*, in this issue, and the feature article "First Clones" in the April 1995 issue.

**MacInTax Troubles** The 1994 edition of Intuit's MacInTax can produce errors if you import financial data from other software, or if you meet one or more of the following conditions: (1) you only have disability income, (2) you are taking a Section 179 deduction for an automobile, (3) you are working with the Estimated Tax Worksheet to estimate payments for the 1995 tax year, or (4) you are depreciating an asset that is in the final year of its depreciable life. Intuit has released a bug-fix. 602/295-3080.

## **Apple, Microsoft Clash over Video**

Apple has added Microsoft and Intel to a lawsuit it filed last December against San Francisco Canyon, a company Apple had contracted to develop QuickTime for Windows. Apple claims that thousands of lines of code developed for Apple's QuickTime turned up in a program Canyon designed for Intel to accelerate Microsoft's QuickTime competitor, Video for Windows 1.1d—

code that Apple says Intel then provided to Microsoft for use in more than 20 Microsoft products. Apple says that an independent source verified the replication of the QuickTime code. In early March a federal court ordered Microsoft to stop distributing Video for Windows files that contained the contested code, via bulletin boards and CD-ROM. Other companies distributing the files are unaffected.

**Live Picture's Price Plummets** Citing a desire to make its image processing program more accessible, HSC Software has cut the retail price of Live Picture by 75 percent—from \$3995 to \$995. The price is now competitive with those of other image editors, such as Adobe Photoshop (\$895), Fauve Software's xRes (\$799), and QuarkXPosure (\$895, due out this summer; see *Graphics* news, in this issue). What consolation will be offered to those who already paid the original price? HSC says that anyone who purchased on or after November 27, 1994, can attend a free, two-day hands-on training session tentatively scheduled for this spring in Santa Barbara, California. All registered users will receive a free upgrade to version 2.0 (due to ship by March).

## **AppleTalk Gains Multimedia Support**

To optimize the exchange of real-time multimedia over local- and wide-area networks, Apple has developed AppleTalk Multicast extensions and related protocols that deliver multimedia data over a network to just the nodes that request the information. The AppleTalk extension means that workgroups won't have to migrate to Ethernet to enjoy the benefits of the cross-platform QuickTime videoconferencing products expected by summer 1995 that support the H.320 worldwide teleconferencing standard. Apple is licensing the multicast protocols; internetworking-equipment vendor Cisco Systems (408/526-4000) has already signed on. **m**



# News

EDITED BY TOM MORAN

## IN THIS ISSUE

p. 35 Pioneer's AV Mac Clones p. 35 A Rush to the Web p. 36 Internet in the OS

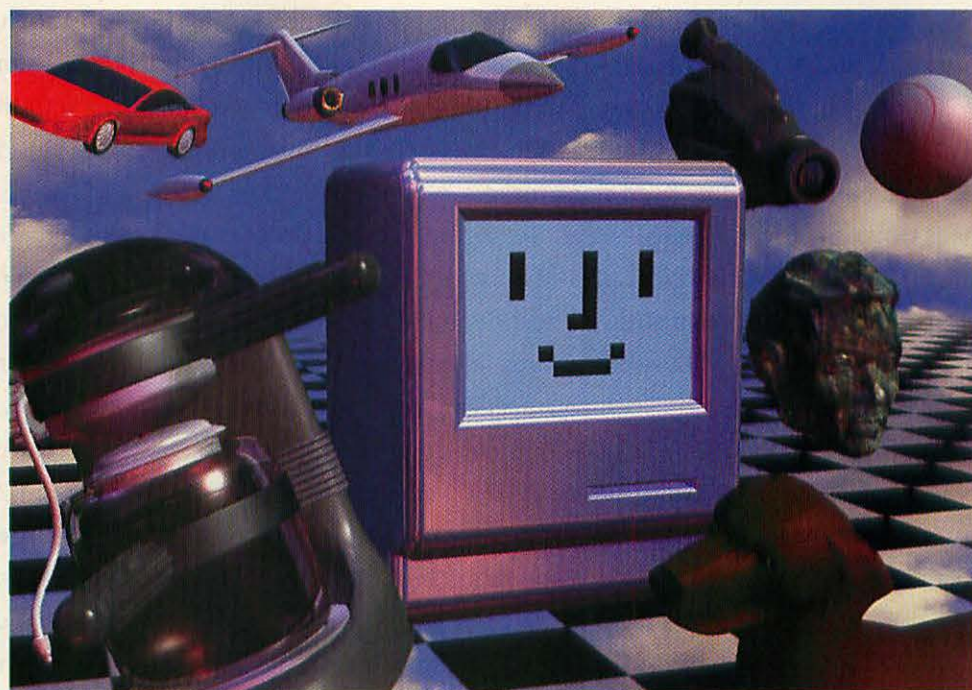
p. 36 Optical Standards Chaos p. 37 Microsoft Word Fix

p. 122 Quark Extends Its Reach p. 126 Power Mac Databases p. 138 PowerTalk Plans

## The QuickDraw 3D Revolution

**B**efore Apple devised the QuickTime standard, trying to work with audio or video on a personal computer could turn into a real mess. Now that QuickTime is widely used on the Mac and on Windows machines, Apple is attempting a similar achievement with QuickDraw 3D: creating a standard way of dealing with 3-D images—from creation to output. One of the most exciting possible uses for the QD 3D software developers' kit that Apple hopes to ship soon might already be in the labs at Apple: a 3-D Macintosh interface. Although company representatives have declined to confirm that QuickDraw 3D would be used to create a 3-D version of the Macintosh Finder (among other things), Apple documents note that the company's strategy is to "make 3D interaction an integral part of the Macintosh experience," and Apple has shown a 3-D interface for manipulating objects within applications.

QuickDraw 3D will take advantage of the processing power of Power Macs (no 680X0 version is anticipated) to bring 3-D from high-end workstations to the high-volume personal computer arena.



Although 3-D graphics software programs already exist for the Mac, professional 3-D images and animations are more often developed on powerful technical workstations, such as those from Silicon Graphics. Since PowerPC chips have brought greater processing power to the Macintosh desktop systems, it's now much more possible and

useful for Apple to create a platform for creating and managing 3-D projects.

### 3-D Cut-and-Paste

The new 3-D standard will allow for cut and paste across the Mac and Windows platforms, according to John Alfano, Apple's 3-D architectures product manager. Currently, 3-D applications often

have their own custom formats, meaning that a lot of exporting and converting is required when manipulating files, especially across platforms. But if Apple's metafile format for 3-D images is widely accepted, users will not have to worry as much about importing or converting files to work with their 3-D applications. "Our goal is to make 3-D



just as ubiquitous as PICT or type," Alfano says. Apple expects QuickDraw 3D to have its biggest impact in design engineering, publishing, digital video, education, and entertainment. One intriguing possibility for education or games is that Apple might find a way to combine QuickTime VR (for virtual reality) with QuickDraw 3D. "We have had discussions with the QuickTime VR team about the next steps for integration, and I think we might cook up some interesting things," Alfano says.

An interesting feature of a QuickDraw 3D metafile is that it is not a prerendered bitmap but more of a database of data and operations that carry out the rendering on the computer opening the file, something like what EPS does for two-dimensional files. While cautioning that there is no such thing as a typical 3-D file, Alfano says that an example file showing a fully shaded car (about 3180 polygons) takes up only about 182K. The metafile includes the basic geometry and a database with all the information required to render and light the image. Also, QuickDraw 3D is designed as an extensible architecture: like QuickTime, it will accept plug-in modules designed by third parties. The second version of QuickDraw 3D will accept third-party rendering modules and shading modules: Apple says the first version of QD 3D will not have this capability completely activated because of the need for further testing.

## QuickDraw 3D for Windows

Apple says it has already seeded about 200 developers with alpha versions of the software developers' kit. The company plans to ship the end-user version of QuickDraw 3D 1.0 this summer for the Mac, with a Windows version following about six months later. The Mac version will ship with new Macintoshes, and will be rolled into the next system software update.

*continues on page 38*

# Pioneer Unveils AV Mac Clones

In a move that represents the first foray by Macintosh clone makers into the home/entertainment market, Pioneer Electronics Corporation announced February 15 that it will begin selling clones bundled with Pioneer-brand peripherals this summer. Initially the clones will be available only in Japan. Pioneer spokeswoman Joni Saphir said that the company has not yet decided if it will offer machines in the U.S. market.

Pioneer, which has not previously built or marketed computer systems, is known primarily for its consumer AV equipment; in the Mac market, Pioneer is also a leading supplier of CD-ROM, magneto-optical, and laser-disc drives.

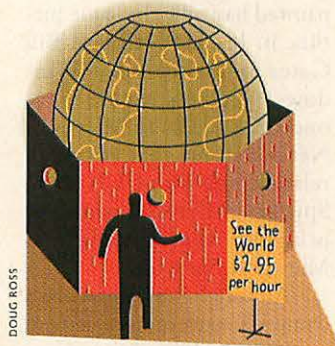
Pioneer plans to sell high-end and low-end models—the Personal Computer MPC-GX1 will be based on a 66MHz PowerPC 601 processor, the same as used with the Power Macintosh 7100/66. The low-end MPC-LX100 machine will use a 33MHz 68LC040 processor—a chip that lacks a floating-point unit and provides performance inferior to that of currently shipping Apple desktop units except some Performa models—which should be adequate for most home/entertainment needs.

Both machines will ship with quad-speed CD-ROM drives, multiscan displays, and CLD players, described by Pioneer as external drives that play both audio CDs and laser discs. CLDs either provide dual trays for the different-size disks or use a single laser disc-size tray with an inner slot for CDs, much as turntables designed for LP records could also hold old 45-rpm records.

Pioneer's machines will be the first clones specifically targeted to home users, which may explain the emphasis on the Japanese market. Apple Macs are relatively strong in

the U.S. home market, and a clone maker might have difficulty competing here. Apple hopes clone vendors will enhance the Macintosh OS presence in Japan over the next couple of years.

The Pioneer license covers only KanjiTalk (Apple's Japanese operating system), effectively restricting the company to the Japanese market for now. One target market Apple covets for the Mac OS is Japanese education, where Apple holds a relatively small market share compared with its preeminent position in U.S. education. The machines Pioneer is developing would be logical candidates for education, but Saphir says that Pioneer currently has no plans to market its clones to schools.—CHARLES PILLER



## A Rush to the Web

COMMERCE ON THE INTERNET

Establishing a connection to the World Wide Web can be time-consuming, expensive, and fraught with crashes. Online services are rushing to change all that by expanding their Internet offerings, and at the same time they're cutting prices to compete for customers.

America Online expects to

*continues*

## Apple's Appeal Rejected

The U.S. Supreme Court has rejected Apple's petition asking for a review of the company's long-running lawsuit against Microsoft and Hewlett-Packard. The lawsuit alleged that Microsoft and HP violated Apple copyrights on elements of the Macintosh interface. The rejection lets stand earlier judgments that ruled against Apple.

## SyQuest Drops Prices

SyQuest Technology has dropped the prices of the 44MB, 88MB, and 200MB removable cartridges for its 5¼-inch drives by about 30 percent. The company cited higher volumes and reduced manufacturing costs as reasons for the move. 510/226-4000.

## QuickTime VR Going to Developers

QuickTime VR, Apple's hot-buzz technology that puts the user inside a navigable space (the bridge of the *Enterprise*, for instance), should begin shipping to developers in March. QuickTime VR is designed so that environments that developers build on the Mac can play either on Macs or on Windows machines. Products designed for the end user to experience should begin appearing three to six months after the developer version ships.

## Multi SCSI for PCI Bus

Atto Technology says it has designed a Fast/Wide SCSI-2 accelerator board that fits into PCI slots and that it is shipping the board to OEMs and system integrators. PCI is the bus that Apple will use on the next generation of Power Macs. Atto says its card can sustain SCSI data transfers of up to 40MB per second. The ExpressPCI card supports 30 SCSI bus IDs and provides full support for RAID levels 0, 1, 5, and 10 on both internal and external drives. The ExpressPCI supports SCSI Manager 4.3. 716/691-1999.



have a Mac Web browser in the first half of the year. AOL says its browser technology will include multithreading, persistent caching, and full access to Internet features, including E-mail, Gopher, WAIS, and FTP.

CompuServe, Prodigy, Delphi, and eWorld say they expect to add Mac-compatible Web browsers sometime in 1995. CompuServe will first build a browser into its CompuServe Information Manager. Later it will offer a service called Dial PPP for members who want to access the Internet and the Web through CompuServe but using their own browser program.

Prodigy's Mac browser will be available sometime in the second half of the year, at the same time Prodigy releases an "honest-to-God" Macintosh interface, according to the company. (A Windows-based browser and Web access became available in January at no extra charge.)

Even Microsoft, which is creating an upcoming online service called Microsoft Network, plans to offer full Internet capability to Macintosh users—eventually. "The Mac is a target platform for us," according to Anthony Bay, Microsoft director of Internet and corporate services. "We fully intend to do a Macintosh client." Mac fans shouldn't expect one in 1995, however.

At least initially, some of the browsers offered by online services won't have the full capabilities of software such as Mosaic and Netscape. One consolation may be the price, however. Few services have set a price for Web access, but standard access is now cheaper. AOL's \$9.95 monthly fee for five hours continues; additional hours now cost \$2.95 each instead of \$3.50. CompuServe's standard plan is \$9.95 per month; premium services at 9.6 Kbps and 14.4 Kbps are now \$4.80 per hour instead of \$8.60. eWorld members get four hours per month instead of two for \$8.95; additional hours are \$2.95 each, not \$4.95.—DEBORAH BRANSCUM

## Internet in the OS

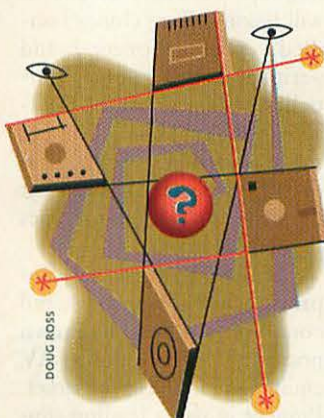
APPLE'S  
HIDDEN ADVANTAGES

The race to bring Internet services directly into the operating system is on. And while other companies have done a better job at trumpeting their plans, Apple has been quietly putting the pieces in place. In the fall of 1994, IBM began the public race to include Internet services in the operating system by touting those features in OS/2 Warp. Currently shipping, Warp includes TCP/IP protocol stacks, Internet utilities (Gopher, FTP, Telnet, and World Wide Web), and E-mail. At a single click, the system will establish a SLIP connection with IBM's Global Network, where users can sign up for an account and receive ten hours of free connect time.

In early 1995, Microsoft painted basically the same picture in broader strokes. Bill Gates announced that Windows 95 users would have one-click access to Microsoft Network and that, through relationships with UUNet and Spyglass, Microsoft would be bringing the Internet to Microsoft Network.

Although it has not made a comprehensive announcement concerning Internet services in the Macintosh Operating System, Apple does hold the advantage of having many of the pieces in place. PowerTalk already gives System 7.X users integrated E-mail, and Apple ships MacTCP as part of System 7.5. In 1995, users can expect integrated online access in PowerTalk; Apple's Open Transport Communications Architecture will put TCP/IP networking protocols deeper in the heart of the operating system. Recently, Apple told *Macworld* that more Internet services, some developed by third parties, would find their way into the OS in 1995 and 1996. According to Garry

Hornbuckle, product line manager, networking and communications products at Apple, "While we've made a start with MacTCP in the OS, that's by no means our idea of where to quit. We have a lot more steps planned, with the goal of making the Macintosh a great [Internet] client out of the box."—CAMERON CROTTY



## Optical Chaos

FOUR STANDARDS COMPETE

Four new, incompatible erasable optical disk drive formats will appear in the coming months. Each claims a special feature lacking in the competition. All have storage in the 640MB to 650MB range and will sell for roughly \$700 to \$1000. Three of the drives will use 3.5-inch media and will come in versions

small enough to fit in a floppy drive bay. Sony will be out with a 650MB magneto-optical (MO) SSD drive this summer that is incompatible with its own earlier ISO 3.5-inch optical drives. The ISO group—including Fujitsu, Olympus, Ricoh, Epson, and many others—builds on the existing 3.5-inch MO format. The new ISO 640MB drive, due in early 1996, will read and write to older 230MB disks and will read but not write to 128MB disks. Toshiba has announced a 650MB-per-side phase-change format that it will introduce as a two-sided 1.3GB disk. Panasonic's physically larger PD drive, promised in early 1995, can read standard 4.77-inch CD-ROM discs (quad-speed) as well as read and write a new phase-change format. Phase-change format disks cannot be read by ordinary CD-ROM drives.

Sony claims that giving up compatibility with existing MO cartridges yields higher performance and storage density; the ISO group says it will add all the same advantages in future versions and still maintain at least read compatibility. Toshiba points to its high capacity and promises a fast data-transfer rate (16.4 Mbps) immediately. Panasonic says its dual-use drive will save space and costs in desktop computers, offsetting its slow-

## THE AmCoEx INDEX OF USED MACINTOSH PRICES

Machine/RAM/Hard Drive	Average Sale Price	Monthly Change
PowerBook 100/4MB/20MB	\$450	-\$50
PowerBook 140/4MB/40MB	\$650	-\$50
PowerBook 180/4MB/80MB	\$1550	\$0
PowerBook Duo 230/4MB/80MB	\$825	+\$25
Mac Classic/2MB/40MB	\$350	+\$25
Mac SE/30/2MB/40MB	\$500	-\$25
Mac LC II/4MB/40MB	\$425	-\$25
Mac IIxi/3MB/40MB	\$425	-\$25
Mac IIci/4MB/80MB	\$625	-\$25
Mac IIfx/4MB/80MB	\$750	-\$50
Centris 650/8MB/230MB	\$1250	-\$125
Quadra 900/8MB/160MB	\$1900	-\$100

Index provided by the American Computer Exchange of Atlanta (800/786-0717). It reflects sales during week of February 20. Configurations include keyboard and exclude monitor and display board for noncompact models.



er performance. The vendors say that the 640MB and 650MB formats will be expanded to 1.3GB; all versions may eventually reach 2.6GB. To achieve such capacity, some disks would be two sided; since these small drives would have space for only one laser head, you would have to turn the disk over, making each side a distinct volume.

No one expects all four of the formats to survive, but each format has backing from at least one very large company that claims it will establish an industry standard. None of the optical formats can offer the performance of a magnetic hard disk, so one beneficiary of the inevitable confusion may be magnetic cartridge maker SyQuest. SyQuest's purely magnetic drives currently outsell all the optical drives combined, according to the *Disk/Trend Report* newsletter.—CARY LU

## Newton Branches Out

**HARDWARE LICENSEES  
CREATE NEW SOLUTIONS**

If imitation is the sincerest form of flattery, then Apple's Personal Interactive Electronics (PIE) division may be on its way to a swelled head. While not abandoning its original vision of the Newton as a PDA panacea, the PIE group is working on its role as an OEM and technology developer. Given the two Newton-based units that have recently appeared, the efforts appear to be bearing fruit.

Roughly the size of a paperback book, Motorola's Marco is a PDA with the heart of a Newton and the soul of a pager. Like a book or a personal organizer, the black plastic device opens and



The SuperTech 2000 is a ruggedized PDA that uses Apple's Newton technology.

closes on a vertical hinge; on the right is the familiar 320-by-240-pixel MessagePad screen. The left-hand side is blank, but houses a wireless, packet-data radio modem. Support for the radio is built into the Marco's Newton-based operating system; users send and receive mail via Ardis's RadioMail service or Personal Messaging Service. The Marco has 1MB of static RAM, an AppleTalk serial port, a PCMCIA Type II slot, and a Newton infrared beaming port. The Marco uses a rechargeable nickel-cadmium battery pack and runs an enhanced version of the Newton OS. Pricing for the Marco is not set but will range from \$900 to \$1300.

While the Marco is aimed at mobile executives, other companies are developing Newton platforms intended for more vertical markets. The SuperTech 2000, developed by Harris Corporation's Dragon Division and Digital Ocean, looks like what might happen if Fisher-Price designed a PDA. The unit looks roughly like a MessagePad 110, only twice as thick and encased in a hefty removable rubber protective cover that allows the unit to survive a 6-foot drop to concrete. The bulky body houses 1MB of static RAM, an AppleTalk serial port, a rechargeable nickel-metal-hydride battery pack, and a backlit display. The SuperTech 2000 (also sold by Digital Ocean as the Tarpon) contains Digital Ocean's spread-spectrum wireless LAN technology. Harris and Digital Ocean expect the unit

to be used in warehouses, factories, retail stores, or on the road, where the device could connect to a remote server carried in a service technician's tool van. Pricing on the SuperTech 2000/Tarpon is not set but is expected to be approximately \$3000. For more information about the latest Newton advances, see also "Newton Sprouts Again," *At Work* news, March 1995. Digital Ocean, 913/888-3380; Harris, 805/987-9511; Motorola, 800/894-7353.

—CAMERON CROTTY

## Microsoft Fixes Word

**SOFTWARE GIANT  
BATTLES CRITICISM**

Responding to outraged buyers of Microsoft Word 6 for the Macintosh, who contend that the new version of the word processor is too big and too slow, Microsoft has announced a maintenance release that it says will improve performance. Microsoft says that Word 6.0.1, expected by late March, will speed load times, address printing problems, resolve extension conflicts, and fix speed issues on 030-based machines.

The company will likely relabel the Word 6 package to say "040-recommended," according to Martina Lauchengco, Word for the Mac product manager. "Word runs on 030s, but it runs optimally on 040s," says Lauchengco. "Of course, people's systems vary greatly, so it depends on the system configuration. The better machine you have, the better it'll run. We want to be more open—we don't want people to feel misled."

Microsoft says it would notify registered Word 6 users of the free update via mail. Word 6.0.1 will be available from online services and Microsoft's customer-service department. Microsoft, 800/426-9400; 800/563-9048 in Canada.—JOANNA PEARLSTEIN

## Pinnacle Cuts Orray Price

Pinnacle Micro has reduced the list price of its Orray optical array system from \$14,995 to \$9995 (see *News, Macworld*, June 1994). The Orray looks to the Macintosh like a fast hard drive but is actually based on four removable optical drives with a capacity of 5.2GB. 714/727-3300.

## 4GB Drive, 8GB Array

Conner Peripherals has added to its DiskStor line a 4GB drive that it is offering as an internal or external stand-alone drive, or in pairs as an 8GB disk array. Called the Conner Filepro Performance 4207, the drive has a 9ms access time and a data-transfer rate of 4.1MB per second. The \$2695 internal stand-alone version fits the Quadra 800 and 840 and the Power Macintosh 8100 and 8150. The external single drive lists for \$2795. The 8GB configuration (\$5795) comes as a RAID Level 0 (for greater speed), but can alternatively work as a RAID Level 1 (for greater data security). 408/456-4500.

## Samsung Monitors

Samsung Electronics America has announced three monitors: two for consumers and one for graphics professionals. The SyncMaster 15CLi and 17GLi are 15-inch and 17-inch displays, respectively, aimed at the consumer market. They support resolutions of 1280 by 1024 pixels at a 60Hz refresh rate (a refresh rate that some Macintosh users will find too low), and 1024 by 768 pixels at 76Hz. The 15-inch lists for \$560, and the 17-inch lists for \$849. The \$1665 SyncMaster 20GLi, a 20-inch display for graphics professionals, supports resolutions up to 1600 by 1200 at a 60Hz refresh rate. All three of the monitors have a 0.28mm dot pitch and comply with Energy Star and MPR II guidelines. 201/229-4000.



# CompuServe GIF Uproar

ON THE MENU:  
ROYALTY SURPRISE

It happened just before New Year's Day, but when CompuServe announced that developers would have to pay to have their software read and write the Graphics Interchange Format (GIF), the fireworks would have sufficed for the Fourth of July.

In 1987, CompuServe developed GIF as a free, non-proprietary specification for graphics files. CompuServe incorporated a data-compression algorithm called Lempel Ziv Welch (LZW), which, unbeknownst to the company, had been patented in 1985 by Unisys, the large computer technology company based in Blue Bell, Pennsylvania. In 1993, Unisys notified CompuServe that LZW was patented, and the two companies worked out a licensing agreement that calls for CompuServe to pay Unisys a 1 percent royalty on each copy of its software. Part of the agreement was that CompuServe could relicense LZW to other developers creating software that used the GIF specification in connection with CompuServe. When CompuServe announced this in its graphics forum on December 29, 1994, its developer community collectively hit the roof. CompuServe was accused of trying to profit off the sweat of small developers, and Unisys was raked over the coals for betraying the spirit of the Internet, where information is supposedly free to any who ask.

It turns out that it's hard to find malice in this story, only missteps. LZW is a widely used algorithm, appearing in the V.42 data-compression protocol in modems and in the TIFF (tagged-image file format) specification for graphics files. In the years since Unisys patented LZW, many companies have licensed the technol-



ogy, including Adobe, GENie, Intel, and several modem hardware manufacturers. Since the CompuServe announcement, Unisys has been contacted by many other companies, including "virtually every major online service," according to a Unisys spokesperson. Unisys also appears to be doing its best to keep the algorithm in play, give smaller developers a fair shake, and to acknowledge that it wasn't as public as it could have been

about its patent. The company says it won't require licensing for noncommercial, nonprofit applications, and it won't go after back fees for products marketed prior to 1995. A company spokesperson also characterized expected licensing terms "as not excessively different" from those received by CompuServe.

So far, the only thing that CompuServe is guilty of is not doing its homework thoroughly enough when developing the GIF specification. CompuServe has investigated several ways to alleviate the problem, including purchasing the LZW patent as it applies to GIF from Unisys (at press time, that effort appeared to be dead in the water). Currently, CompuServe is driving the development in the graphics community of a new, 24-bit standard based on publicly available algorithms.

—CAMERON CROTTY

"QUICKDRAW 3D" continued

## Support Gathers for QuickDraw 3D

Many vendors of 3-D hardware and software support QuickDraw 3D:

- 3DLabs is writing QuickDraw 3-D drivers for its GLINT 3-D acceleration chip. 408/436-3455.

- Byte by Byte says a compatible version of its Sculpt ray-trace modeling software will ship when QuickDraw 3D is released. 512/795-0150.

- Diehl Graphsoft's next release of MiniCad will use the metafile, with more support to follow. 410/290-5114.

- EA Research says its line of Easycolor 3-D accelerator boards will work with QuickDraw 3D via a software upgrade. 510/867-0967.

- Electric Image is working on a QD3D version of its ElectricImage Animation System rendering software. 818/577-1627.

- Graphisoft says ArchiCAD supports the QD3D metafile format and will add support for more of the API. 415/737-8665.

- Ray Dream will support QD3D in future versions of its Ray Dream Designer 3-D illustration software. 415/960-0768.

- Spatial Technology is integrating its ACIS geometric modeling tool kit with QD3D. 303/449-0649.

- Specular International will support QD3D in Infini-D 3-D and LogoMotion. 413/253-3100.

- Strata's StudioPro should support QD3D as soon as Apple ships it. 801/628-5218.

- Syndesis says its InterChange 3-D file-translation software for Windows will support the QD3D metafile format. 414/674-5200.

- Vertigo Technology will port its 3-D media authoring software to the Power Macintosh to take advantage of QD3D. 604/684-2108.

- Viewpoint DataLabs says it is offering more than 3000 three-D models that are compatible with QD3D. 801/229-3000.—T.M.

## BUGS & TURKEYS



Checking your spelling in the Power Mac version of Persuasion 3.01 can crash your system. Adobe plans a fix in a future version but could not specify a release date at press time. Adobe Systems, 415/961-4400.



If you're using GlobalFax 2.5, be careful what application you open while your serial port is in use. Users report system crashes when launching Microsoft FoxPro if the Mac's serial port is active. Crashes do not occur if FoxPro is already launched when the serial port is activated. Global Village is researching the problem. Global Village, 408/523-1000; Microsoft, 206/882-8080.



The VideoSpigot, Spigot II Tape, and Spigot PowerAV are all incompatible with QuickTime 2.0. Radius hopes to have a software fix available by the middle of March for the Spigot PowerAV. Fixes are also planned for the other two products, but no time line has been set.



If Apple was serious enough about Apple Guide to ship system disks without a full manual, couldn't it at least make sure Apple Guide worked with the company's own software? Alas, Apple Guide is incompatible with At Ease and won't run if At Ease is enabled. Apple says it'll certainly fix it "sooner or later."

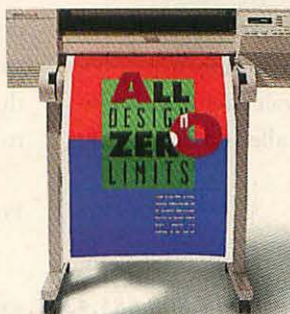
Macworld will send you a Bug Report T-shirt if you are the first to inform us of a serious, reproducible bug that we report in this column, or a Turkey Shoot T-Shirt if we shoot your turkey in this space. See *How to Contact Macworld*.



suggested U.S. list price. \*Large model lists at \$9,595. †Pantone, Inc.'s check-standard trademark for color. Adobe and PostScript are registered trademarks of Adobe Systems Inc. which may be registered in certain jurisdictions. ©1995 Hewlett-Packard Company P212591

# Introducing a printer for those who have ideas bigger than this page.

The HP DesignJet 650C/PS  
printer. Large-format  
at a small price.  
**\$8,595\***



Go on. Give yourself room to think. With the HP DesignJet 650C/PS, you can now print in sizes up to 2' by 9' (up to 3' by 9' with our larger model\*\*). Right in your office. Right away. No tiling. No hang-ups. No problem. Just clean, inkjet output with PANTONE®-licensed colors. Adobe™ PostScript™ Level 2 language and a built-in RIP are included. For an output sample, call:

1-800-354-7622, Ext. 9064.



Circle 11 on reader service card



SEE RED.



Design: Wheeler Design  
Photography: Kory Addis

## AGFA. FOTOtUNE. RED.

There's RED and there's RED. We see redheads and red fire engines and we paint the town red. And while a rose may be a rose, a red is not always a red. In the world of electronic publishing, this is doubly true. Scanners, monitors, and output devices define color in their own particular "languages" (called color spaces).

FotoTune is the solution. FotoTune, the Color Management System (CMS) from Agfa, takes those different color spaces and creates a "common language" called *ColorTag*. FotoTune insures color consistency throughout the workflow, from scanner to monitor to output device.

FotoTune. For all the ways of seeing red.

Find out how FotoTune can help you. Call 1.800.685.4271, extension Tune.

**AGFA** 

Circle 43 on reader service card



# Power Mac News

## The 604 Advantage

WHAT THE NEXT POWERPC CPU OFFERS MACINTOSH

**M**ove over, 601—the first Macs using its successor, the PowerPC 604 CPU, will arrive this summer or fall in a high-end Macintosh system. Apple has shown a prototype of such a 100MHz system, which will be in a tower case similar to the Power Mac 8100's and offer six PCI slots for peripheral expansion. (Apple plans to use the 100MHz 604 initially, although it has shown a Mac prototype using a prototype 130MHz 604.)

According to IBM and Motorola, who codesigned the 604, the 100MHz 604's performance is 1.3 to 1.5 times as fast as that of the IBM-designed 100MHz 601 (which is used in the Power Mac 8100/100). Macs using the 604 instead of the 601 won't see as dramatic speed improvements because overall system performance also depends on video, disk, and memory performance; but 604-based Power Macs should still be up to 1.3 times as fast overall as their 601-based counterparts.

For a Power Mac to take full advantage of the 604's speed, it will need a system bus that runs at 66MHz; today's Power Macs' buses top out at 40MHz (for the Power Mac 7100/80 and 8100/80), although Apple is working on faster buses for at least some PCI Power Macs. Ultimately, all Power Macs will use either the 604 or the low-power 603, whose performance is comparable to a 601's.



**Inside the 604** What makes the 604 a better CPU than the 601 is its design, which results in higher speeds. One of the biggest contributors to the 604's performance is its ability to process as many as six program instructions simultaneously, compared with a maximum of three for the 601.

Another key 604 advantage is its ability to juggle the order in which it computes instructions. That last ability—which comes from two techniques, called dynamic branch prediction and speculative execution—means the 604 doesn't have to execute instructions in the order received from application software; the 604 can reorder to achieve the most efficient processing and put the various results back into the order the program expects. Intel's Pentium already uses dynamic branch prediction.

Other 604 improvements include better use of internal caches to reduce the chances of the CPU's being forced to wait for the results of other, related calculations that are handled in parallel, and the implementation of a double-precision FPU, which speeds scientific calculations. (The 601 had to convert double-precision numbers to single-precision

format and back again, which slowed processing.)

**How the 604 Compares** Although the FPU is improved, the 604's non-FPU performance has improved even more, giving the 100MHz 604 better integer performance than a 100MHz Pentium—the 100MHz 601 and 100MHz Pentium were essentially tied.

The 604's new capabilities and greater number of circuits (3.6 million versus the 601's 2.8 million) means that the 604 consumes much more power: just under 10 watts (the 100MHz 601 consumes 4w; the 80MHz 601, 9w; the 100MHz 603e, 3w; the 90MHz Pentium, 4w; and the 40MHz 68040, 6w). But that compares favorably with Intel's P6, a new CPU that should appear at the end of 1995 and should succeed Pentium. The P6 can consume as much as 20w at 133MHz (Intel says 14w will be more typical), plus part of the power used runs the external 256K cache that on non-P6 systems is a separately powered, separate component on the motherboard.

When both 604-based Macs and P6-based PCs are available, the P6 will run only about 1.1 times as fast as the 130MHz 604, based on Intel and IBM/Motorola estimates. That means the effective speed difference between 604 and P6 systems will come down to how well hardware and software developers tune their products. But the 133MHz P6's cost will be much higher—Intel estimates \$1000 versus the 100MHz 604's current \$550 (a price the 133MHz 604 is likely to inherit when the P6 ships). Even adding a \$200 256K external cache to the 604's price makes the 604 a better deal.—GALEN GRUMAN

## Power Watch

THE LATEST ON PRODUCTS FOR THE POWER MAC

- Allegiant offers SuperCard 2.0, a \$695 hypertext authoring tool similar to HyperCard. Upgrades cost \$49 from version 1.7 and \$129 from previous versions. 619/587-0500.

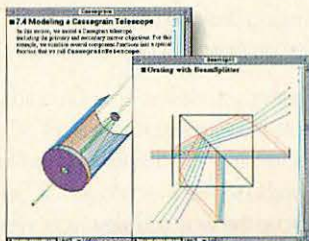
- Electric Image has shipped ElectricImage Animation System, a \$7495 rendering program. The upgrade from version 2.0 costs \$495. 818/577-1627.

- Global Village has upgraded Global Fax to version 2.5. The upgrade costs \$29.95. 408/523-1000.

- Macromedia has shipped Director 4.0, an \$1195 multimedia authoring tool that produces presentations that run on both 680X0 and Power Macs. The upgrade from the 680X0 version 4.0 costs \$25. 415/252-2000.

- PixelCraft has shipped the \$995 ColorAccess 1.4.5 color-separation software. Upgrades cost \$199 from version 1.3.3 and \$399 from previous versions. 510/562-2480.

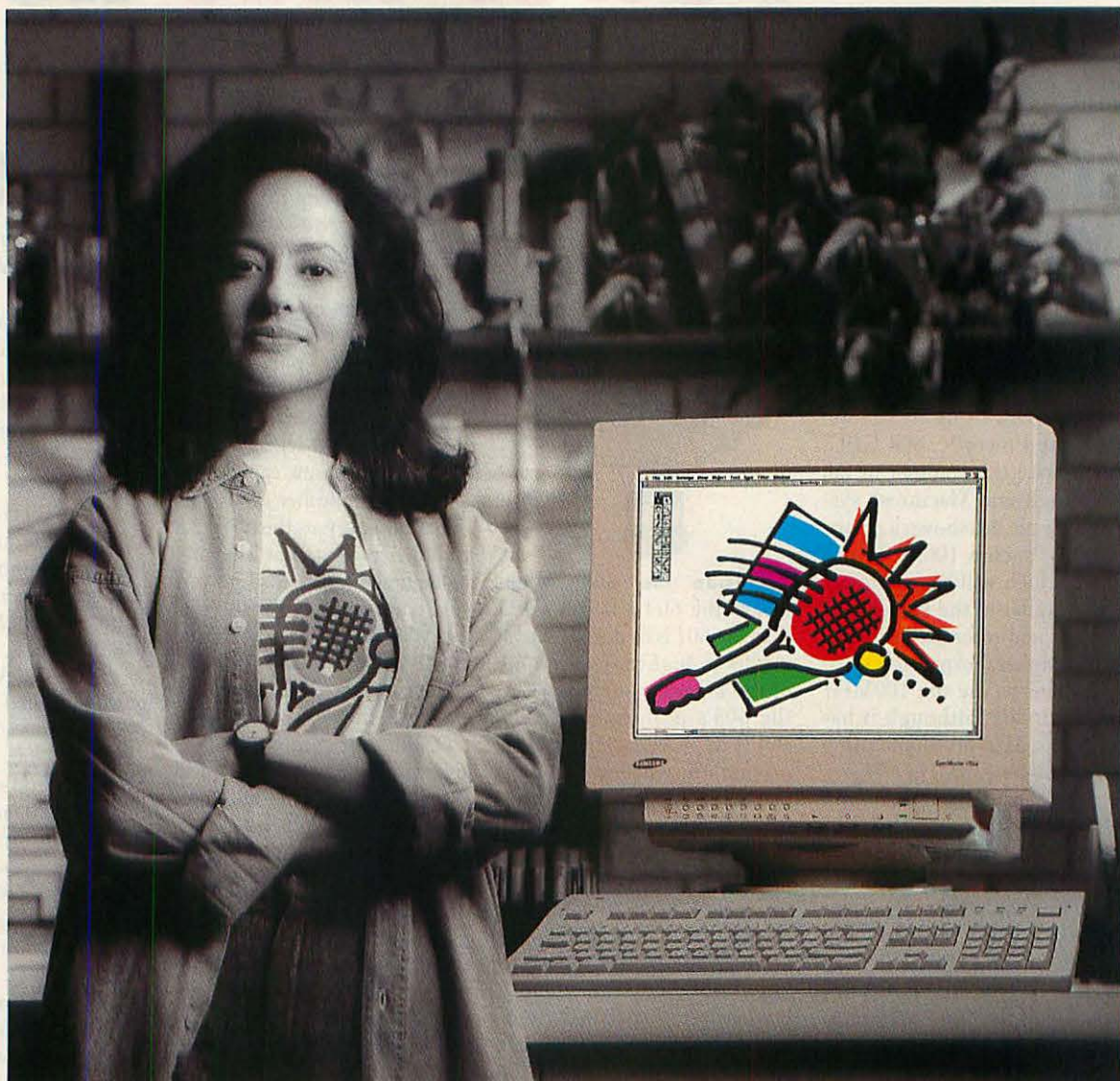
- Wolfram Research is shipping Optica 1.0, a \$695 tool for mathematical modeling and data analysis. 217/398-0700.—GALEN GRUMAN



Wolfram's Optica 1.0 uses the PowerPC to speed up 3-D and other mathematical operations.



# Samsung. Mac's new point of view.



## SyncMaster 17GLs

It's about how you work on your Mac. Attitude. Satisfaction. Pride. Samsung designed the SyncMaster™ GL Series to be an extension of your creativity.

Whether you design on a Quadra workstation, create multimedia presentations on a Power Macintosh or need external video for your PowerBook, the SyncMaster GL Series will improve the way you view your work.

SyncMaster	14GL	15GL	17GL	17GLs
CRT Size	14"	15"	17"	17"
Dot Pitch	28	28	28	26
Maximum Resolution	1024 x 768	1024 x 768	1024 x 768	1152 x 670
Maximum Refresh Rate at Maximum Res. (Hz)	75	75	75	75
MPR-II (Low Radiation)	•	•	•	•
Power Management	•	•	•	•
Flat Square Screen	•	•	•	•
On-Screen Programming			•	•
Real Color Control				•
Warranty	2 Years	2 Years	2 Years	2 Years

\*1994 Samsung Electronics America Inc. Image on SyncMaster 17GLs courtesy of Mike Quon Design Office. Adaptor required for Macintosh Compatibility. Macintosh is a registered trademark and PowerBook, Power Macintosh, and Quadra are trademarks of Apple Computer, Inc.

With true 24-bit color, multiple on-the-fly resolutions and on-board color control, you can easily concentrate on what you're doing – not on what's running it.

Think about how you work on your Mac. Samsung did. And came up with a whole new point of view.

For more product information, call 1-800-933-4110.



Now available at MacMall.



To order direct call 1-800-222-2808.

Circle 198 on reader service card



# Macworld Online

by Macworld Online Staff

Logging on to a commercial online service is a cinch. But unless you're at a university or large corporate site, logging on to the Internet is a good deal trickier.

Selecting the best local Internet provider is the first hurdle. Then you must decide whether to choose a cheap *shell* account that restricts access to command-line, dumb-terminal emulation or whether to opt for something more expensive. *Dial-up* access (via SLIP or PPP communications protocols) and *dedicated* access (using leased-line ISDN or T1 connections, for instance) allow some graphic display when used with Internet-savvy applications: *Telnet* logs on to a remote server as a terminal; *FTP* downloads files from remote servers; *Gopher* searches server databases for topics of interest; *IRC* (Internet Relay Chat) offers awkward real-time exchanges; E-mail programs give you a mailbox on the Internet. Newer World Wide Web browsers are somewhat more intuitive, and a few browsers integrate suites of the above applications.

Inevitably, Macintosh users will find Internet interfaces somewhat arcane. But for hardy souls, many rewards await on servers worldwide.

## Free and Cheap

In the open spirit of the Internet, many of the applications that you can use to get around are free or shareware. We've

culled a few useful examples from our libraries on America Online and eWorld.

Netscape 1.0N isn't the only Web browser, but in the fast-paced whirl of the Net, it's currently the best. This Netscape Communications offering is stable, easy to use, and boasts features others are sure to emulate (425K; still free).

World Wide Web browsers require helper applications for many tasks. Maynard Handley's graceful Sparkle makes it a pleasure to play QuickTime movies or to view MPEG images online (806K; free).

Choosing a local Internet provider and downloading

files via FTP can be a gamble, but Tom Hyde's and Bruce Grubb's *macFTPbase* offers useful information about hundreds of Internet service providers and FTP sites. The suave online glossary is an added bonus (120K; \$5).

Once you've embarked on the Internet, Milwaukee High School's Best Mac Internet Sites 2.0 reference provides pointers to a variety of servers of special interest to Macintosh users (114K; \$5).

For those ambitious enough to sport more than one Internet connection, John Norstad's *MacTCP Switcher* offers a compact solution for saving and restoring multiple configurations (3K; free).

## Mac Meets the Web

Macintosh-specific Web sites are few in number but well worth a gander. Among our favorites are Lentz's *Macintosh Resources*, a hearty compilation of Macintosh Internet resources at <http://www.astro.nyu.edu/~lentz/mac/home-mac.html>. Finding a piece of shareware amid the vast expanse of the Internet can be frustrating, but the task is much easier if you consult the Searchable Macintosh Shareware Catalog at <http://web.nexor.co.uk/public/mac/archive/doc/search.html>.

Adam Engst is the author of the excellent tome *Internet Starter Kit for Macintosh* (Hayden Books, 1994), a must-read for Internet newbies. He and Tonya Engst also edit the online publication *TidBits*, a mélange of news, reviews, tips, advice, essays, and wry observations, all (or mostly) Macintosh-related. View it at <http://www.dartmouth.edu/pages/TidBits/TidBits.html>.

And finally, setting up your own World Wide Web site can be a gargantuan task (just ask us, we're in the process of working on ours), but Web66 guides Macintosh users through the steps at <http://web66.coled.umn.edu/Cookbook/contents.html>. **m**

### LIVE-EVENTS CALENDAR

One advantage open to the online adventurer is the opportunity to exchange ideas with seminal thinkers. Macworld Online cordially invites one and all to attend informative and entertaining live events that feature our industry's most noted authors, editors, pundits, and power users. Please come armed with questions, comments, and critiques. AOL events in April are on Thursdays, and all eWorld events are on Wednesdays. All events are at 6 p.m. Pacific standard time.

#### Future Macs March 28, AOL

Macworld executive editor Galen Gruman discusses upcoming features to be found in Macintosh operating systems. We welcome questions, wish lists, and advice for Apple.

#### Ask Cary Lu April 5, eWorld

In his monthly *PowerBook Notes* column, contributing editor Cary Lu covers mobile- and remote-computing issues. Online, Cary addresses these topics and more. Please join us.

#### Troubleshooting with Pogue April 6, AOL

Readers familiar with *Desktop Critic* author David Pogue know they

can expect lively and up-to-the-minute repartee at this monthly troubleshooting free-for-all. Bring your trickiest questions!

#### Mac Clone Update April 13, AOL

Wondering just how all this hoopla surrounding Macintosh clones might affect you? Macworld senior editor Charles Piller brings us up to date on this most intriguing topic.

#### Steve Costa's Clinic April 19, eWorld

You might have a Macintosh-related question that Macworld Online administrator Steve Costa can't answer, but we doubt it. Go on. Give it a try. We dare you.

#### The Dawn of DTP April 20, AOL

In 1985, desktop publishing maven Jay Kinney launched *Gnosis* magazine on an ancient Mac. With the periodical's tenth anniversary looming, Jay answers questions both digital and philosophical.

#### Jim Heid Q&A April 27, AOL

Jim Heid has invested his many books and hundreds of Macworld columns with wit, wisdom, and a remarkable Macintosh savvy. Join Jim for an hour of fast-paced Q&A.

### REACHING MACWORLD ONLINE

America Online and eWorld  
Keyword is Macworld



there's the one

where you're suddenly standing onstage  
at the senior prom wearing only really

big underwear and a fez.

And everyone is laughing hysterically,

including Mr. Dimnitz  
your guidance counselor.

Then there's  
the one

where your computer's  
hard drive fries 30 minutes before the big  
presentation, and you've

lost everything.



HEY, WE CAN'T HELP YOU AVOID NIGHTMARES AT NIGHT, BUT WE CAN HELP WITH THE DAYTIME ONES. CHECK OUT RETROSPECT. IT AUTOMATICALLY BACKS UP ALL FILES ON YOUR MACINTOSH. WHETHER IT'S POWER LOSS, THEFT, FIRE, OR DOOFYNESS. IT'LL SAVE YOU HOURS OF RECREATING AND WAITING IN UNEMPLOYMENT LINES. RESTORES ARE QUICK AND COMPLETE. IT BACKS UP DATA TO ANY STORAGE DEVICE, AND HAS OPTIONAL COMPRESSION AND ENCRYPTION. PLUS, JUST ADD A REMOTE 10-PACK AND YOU HAVE NETWORK CAPABILITY. WAKE UP. CALL 1-800-225-4880 FOR MORE INFORMATION.

Don't lose it.

dantz

Circle 26 on reader service card


Retrospect and Retrospect Remake are registered trademarks of Dantz Development Corp. Macintosh is a registered trademark of Apple Computer, Inc. Dantz Development Corporation 4 Orinda Way, Building C Orinda, CA 94563. 510 253-0000 Fax 510 253-9099



# New Products

THE LATEST MACINTOSH RELEASES

by Cameron Crotty

THIS SECTION COVERS MACINTOSH PRODUCTS FORMALLY ANNOUNCED BUT NOT YET EVALUATED BY MACWORLD. UNLESS OTHERWISE STATED, ALL PRICES ARE SUGGESTED RETAIL AND THE MINIMUM REQUIREMENTS FOR OPERATION ARE A MAC PLUS WITH 1MB OF RAM, RUNNING SYSTEM 6. A  SIGNIFIES THAT A NATIVE POWER MAC VERSION OF THE PRODUCT IS AVAILABLE. ALL INFORMATION AND PERFORMANCE CLAIMS ARE SUPPLIED BY THE PRODUCT VENDOR AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY MACWORLD. PLEASE CALL VENDORS FOR INFORMATION ON AVAILABILITY.

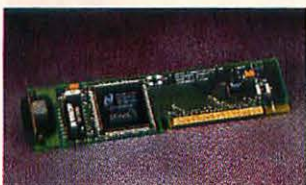
## HARDWARE

### 1060e, 1660e, 1725e Print Systems

The new office standard is 600 dpi, and these laser printers all fill the bill. The 1060e is a 10-ppm, 600-by-600-dpi printer that prints up to legal-size sheets; the 1660e puts out 16 ppm at 1200 by 600 dpi and prints full-bleed on 11-by-17-inch pages; the 1725e puts out 17 ppm at 600 by 600 dpi and prints up to legal-size sheets. All three printers come standard with serial, parallel, and Ethernet ports; Token Ring and LocalTalk connections are available as options. 1060e \$2399; 1660e with 12MB of RAM \$3999, with 24MB \$4899; 1725e \$4999. QMS, 205/633-4300, 800/523-2696; fax 205/633-4866.

### DaynaPort E/CS

There are only a few cards that you can buy for the Communications Slot that appears on some Macintoshes, and Apple makes most of them. But now Dayna has an Ethernet card for the Comm Slot. The DaynaPort E/CS is available in both 10BaseT and thin Ethernet flavors, and it works with the LC 575 and



DaynaPort E/CS

630; the Performa 475, 476, 570, 575, 577, 578, and 630; and the Quadra 630. 10BaseT \$109; thin Ethernet \$119. Dayna Communications, 801/269-7200; fax 801/269-7363.

### DisplayMaker Express

The DisplayMaker Express wide-format printer has an external raster image processor with 64MB of RAM; users can spool jobs from their machines and continue working. The output vehicle is a large-format (54 inches wide), solid-ink (also known as phase-change ink), CMYK printer with a maximum resolution of 300 dpi. The printer features the company's SmoothTone stochastic-screening image-enhancement technology. The printer also uses drop-in ink pucks, and it signals when a particular color is running low so users can add another puck on the fly. Comes standard with simultaneously active LocalTalk, parallel, serial, 10BaseT, and thin Ethernet (Ethernet, TCP/IP, NetWare) ports, plus a SCSI port for storage expansion. \$79,995. LaserMaster Corp., 612/944-9330, 800/477-7714; fax 612/944-1244.



DisplayMaker Express

### DrawingSlate II

CalComp is shipping a new version of its graphics tablet, the DrawingSlate II. This tablet has a resolution of 2540 lines per inch, a smoother drawing surface, and a row of macro buttons on the border of the tablet. The macro buttons include 18 user-programmable function keys, plus preprogrammed macros for cut, copy, paste, open, save, and undo. The tablet comes in three sizes: 6 inches by 9 inches (cordless, two-button, pressure-sensitive pen included), 12 inches by 12 inches, and 12 inches by 18 inches. The pen is sold separately from the larger tablets. 6-by-9-inch tablet with pen \$395; 12-by-12-inch tablet without pen \$395; 12-by-18-inch tablet without pen \$595; cordless pen \$150. CalComp, 714/821-2000, 800/932-1212; fax 714/821-2832.

### Elite XL608 and XL808

Aimed at the SOHO market, the XL608 is a 600-dpi-by-600-dpi, 8-ppm printer



Elite XL608 and XL808

that can handle pages up to 11 inches by 17 inches. The printer ships with 6MB of RAM, a 250-sheet paper tray, 35 resident fonts (and another 45 fonts on floppy disks), and autoswitching PostScript Level 2 and PCL 5 emulation. Ethernet support and a 500-sheet paper tray are available as options. For those who need a larger print area, the XL808 is an 800-dpi-by-800-dpi, 8-ppm tabloid printer that comes with 12MB of RAM and Ethernet. The printer ships with 35 resident fonts and a CD-ROM with an additional 250 fonts. The XL808 also features AccuGray, software that improves halftone imaging. XL608 \$2599; XL808 \$3799. GCC Technologies, 617/275-5800, 800/422-7777; no fax.

### FlexScan F2 Monitors

Nanao has introduced the F2 series, a group of 15-inch, 17-inch, and 21-inch multiresolution color monitors. The FlexScan F2•15 and F2•17 have dot pitches of 0.28mm and maximum Mac resolutions of 1152 by 870 pixels at a 75Hz vertical refresh rate. The F2•21 has a 0.28mm dot pitch and a maximum Mac resolution of 1600 by 1200 pixels at a 72Hz vertical refresh rate. The F2•17EX, with a 0.26mm dot pitch, supports a maximum Mac resolution of 1280 pixels by 1024 pixels at an 80Hz vertical refresh rate. The F2•21, also with a 0.26mm dot pitch, is the company's highest-end offering, supporting a maximum Mac resolution up to 1600 pixels by 1200 pixels at an 80Hz vertical refresh rate. All monitors except for the F2•15 include Nanao's ScreenManager Digital On Screen Display control software, and all monitors meet the Swedish MPR II guidelines and are Energy Star-compliant. F2•15 \$564; F2•17 \$890; F2•21 \$1790; F2•17EX \$999; F2•21 \$2957 estimated company prices. Nanao USA Corp., 310/325-5202, 800/800-5202; fax 310/530-1679.

### Genova Monitors

Genova, a new monitor manufacturer, is selling two 15-inch and two 17-inch displays. The TC1015 and T1015 AT-AR are 15-inch monitors that display color and gray scale, respectively. Both monitors have resolutions of 640 pixels by 870 pixels at a 75Hz vertical refresh rate. The TC1017 is a 17-inch color monitor with a resolution of 832 pixels by 624 pixels at a 75Hz vertical refresh rate. The TC178X is a multiresolution 17-inch color monitor displaying resolutions up to 1024 pixels by 768 pixels at 75Hz. TC1015 \$599; T1015 AT-AR \$399; TC1017 \$699; TC178X \$749. Genova, 310/538-4102; fax 310/538-1754.

### HR 2500

Aimed at engineering, medical, and CAD markets, this 10.4-inch, color LCD panel projects images at 1024-by-768-pixel resolution with a maximum of 16.7 million colors. With an optional video adapter, the panel can display NTSC, PAL, and SECAM video. \$12,995; video adapter \$995. Polaroid Corp., 617/386-2000, 800/816-2611, ext. 9; fax 617/386-9339.



HR 2500

### InterTalk EN

This AppleTalk-only, two-port Ethernet router is designed to segment traffic on an Ethernet LAN. Both ports have AAUI connectors, and the InterTalk EN features flash EPROMs for future protocol upgrades. Management and configuration are via the company's proprietary software (included). \$1499. International Transware, 415/903-2300, 800/999-6387; fax 415/903-9544.

### LCD1280

About the size of an Apple StyleWriter printer (imagine a coffee-table book standing on its spine), this active matrix, color LCD display has a 13-inch viewing area that can display resolutions of 1280 pixels by 1024 pixels or 640 pixels by 480 pixels. The LCD1280 requires a *continues*



## New Products

Radius Thunder IV graphics card. \$11,755. NEC Technologies, 708/860-9500, 800/632-4636; no fax.

### Magicolor Plus

This color laser printer improves on the Magicolor printer by adding QMS's Qcolor color-management technology and bumping the speed to 3 ppm for color and 12 ppm for black and white. The Magicolor Plus comes with built-in LocalTalk, serial, and parallel ports; Ethernet and Token Ring are available as options. The 12MB version prints at 600 dpi in black and white, 300 dpi in color; the 24MB version prints at 600 dpi in either black and white or color. 12MB \$8999; 24MB \$9699. QMS, 205/633-4300, 800/523-2696; fax 205/633-4866.

### MCA230 Plus

Mitsubishi Chemical America, a longtime provider of magneto-optical media under the Verbatim brand name, has entered the drive market with a SCSI 3½-inch 230MB magneto-optical drive, the MCA230 Plus. The drive ships with a driver in firmware that loads into your Macintosh's memory and optionally compresses data before writing it to a specially prepared disk (utility software is included). Also, since the driver is in firmware, it loads at start-up and automatically mounts on the desktop any disks that you place in the drive. \$930 company's estimated price. Mitsubishi Chemical America, 408/954-8484, 800/347-5724; fax 408/232-0164.

### SupraExpress 144 Plus

What's cool about a 14.4-Kbps fax modem, other than the fact that you'll own it for a C-note? The answer is that it draws its power from the ADB port. The 144 Plus supports the standard ITU-T data-transmission, data-compression, and error-correction protocols up to V.32bis. It is also compatible with Group III fax devices and supports the V.17 fax protocol. \$109. Supra, 503/967-2410, 800/727-8772; fax 503/967-2401.

### TribeLink 2

The two RS-232 serial ports (maximum 112-Kbps throughput, upgradable) on this remote-access server support connections from leased-line or standard modem connections. The TribeLink 2 has one 10BaseT and one AAUI port, and will support AppleTalk over PPP, TCP/IP, and IPX over PPP by the end of the second quarter of 1995. \$995. Tribe Computer Works, 510/814-3900, 800/778-7423; fax 510/814-3980.

### ViewSonic 20PS and 20G

ViewSonic is drawing a bead on graphics professionals with these two new 20-inch monitors. Both monitors support a maximum Macintosh resolution of 1600 by 1200 at 66Hz and have a 0.28mm dot pitch. The ViewSonic 20PS includes the On-View control system that lets users adjust over 20 different monitor characteristics using on-screen controls. The displays meet the Swedish MPR II guidelines and are compliant with the Energy Star program. 20G \$495; 20PS



ViewSonic 20PS

\$1695. ViewSonic, 909/869-7976, 800/888-8583; fax 909/869-7958.

### Xpanse N800

This eight-NuBus-slot expansion chassis is designed for video producers and others who use multiple high-end NuBus-based accessories. The rack-mounted box connects to a NuBus slot inside any Mac with NuBus, including the Centris and Quadra 610 and Power Mac 6100 with the \$129 Apple PDS-to-NuBus adapters. Readers should note that, due to NuBus problems, the Power Mac 6100 will support only four out of eight slots. \$1795. Second Wave, 512/329-9283; fax 512/343-9663.

## SOFTWARE

### Adobe ScreenReady

Currently, preparing graphics files for multimedia, video, and online use requires a lot of time and expensive software. Adobe ScreenReady software rasterizes documents and EPS files, easing

the preparation of Macintosh graphics for digital-media display while retaining typographic and graphic quality. A Chooser-level QuickDraw driver creates PICT files from applications such as QuarkXPress and Adobe's PageMaker, Illustrator, and FreeHand, while a second component of the package processes PostScript text and graphics. Adobe ScreenReady supports batch processing, two antialiasing modes (one for computer screen display, the other for TV), and custom palettes. 8MB min. memory, requires Mac IIx, System 7.1. \$199. Adobe Systems, 415/961-4400, 800/833-6687; no fax.

### Alone in the Dark

You enter a mysterious, horrific, 3-D world of zombies, ghosts, magic, and murder in this mystery adventure game. Explore the shadowy corridors and secret passages of a haunted mansion and piece together the final days of Jeremy Hartwood. Was his death a suicide, or was Jeremy the victim of something foul and dark? 3MB min. memory; requires 8-bit color. \$39.95 estimated street price. MacPlay, 714/553-6678, 800/969-4263; fax 714/252-2820.

### Apple LocalTalk Bridge

Step up to higher-speed networks without giving up your LocalTalk network. With Apple's LocalTalk Bridge software installed, a Mac connected to a LocalTalk network can simultaneously connect to an Ethernet or Token Ring network. You can open the LocalTalk network segment.

# m P O W E R

## Everything you need to create great multimedia... all at the touch of a button!



- ☒ Slide generation capabilities of presentation software
- ☒ Audio & Video digitizing/Quicktime creation of editing software
- ☒ Interactivity of multimedia presentation software
- ☒ Media integration & device control of authoring software

mPOWER utilizes a unique push button interface that puts everything you need at your fingertips. In minutes you can create anything from your basic electronic slide show to a full blown multimedia spectacular. Quickly add audio or video from a camcorder, VCR, laser disc player, CD ROM or microphone into your presentation...all at the touch of a button!



Take Us For A Free Test Drive Today.  
**Call 1-800-921-9493**  
Or Order Now For Only \$295



**Multimedia  
Design  
Corporation**

**DEALER  
INQUIRIES  
WELCOME**

MW 01 © 1995 Multimedia Design Corporation. All rights reserved. mPOWER is a trademark of Multimedia Design Corporation. All other trademarks are the property of their respective holders.  
\* \$7.95 shipping and handling on all test drives.



See us at Seybold Boston,  
March 29-31, Booth #2137

# Explore, Design and Tweak 1,000,001 Ways!

## KPT Convolver

FOR MACINTOSH/POWER MACINTOSH/WINDOWS/WINDOWS NT

Plug-in ready for Photoshop 3.0 and Painter 3.0!

Real Time Relief Angle

Real Time  
Unsharp Masking

Real Time  
Full-on  
Tweak

Real Time  
Gaussian  
Blur

Real Time  
Directional  
Sharpening



Incredible control over  
the Custom Kernel  
Filter Engine!

Photography by Val Galanov of PhotoSpin  
Look for other quality photos in the "KPT Power Photos" CD-ROM collection



**MacWEEK**  
JANUARY 1995

FREE! MAC VERSION INCLUDES COLOR-IT! 3.0 LE!

One-stop shopping for filter effects! 200 steps of Undo!

HSC SOFTWARE PRESENTS ESSENTIAL IMAGING CONTROLS "KPT CONVOLVER"  
STARRING CORRECTIVE TOOLS TO SHARPEN AND CLEAN CREATIVE INSTRUMENTS TO EXPLORE DETAIL

AVAILABLE AT MACCONNECTION 800/800-2222 COMPUTERWARE 800/326-0092 MACWAREHOUSE 800/255-6227 MAC ZONE 800/248-0800



6303 CARPINTERIA AVE. CARPINTERIA CA 93013 805/566-6220 VOICE 805/566-6385 FAX

TALK TO US! [kptsupport@aol.com](mailto:kptsupport@aol.com), KEYWORD "KPT" on AMERICA ONLINE

© 1995 HSC Software Corp. HSC is a registered trademark and KPT Convolver is a trademark of HSC Software Corp. Macintosh is a registered trademark and Power Macintosh is a trademark of Apple Computer, Inc. Used under license. All other product names are trademarks of their respective owners.

Circle 5 on reader service card





# Hot New Upgrades. More Choices. Even Faster.

**DayStar** offers the most and the fastest PowerPC upgrades for your Mac. Only DayStar offers PowerPC upgrades for your IICI, IISI, IIVI, IIVX and Performa 600. And anyone can move to PowerPC because DayStar's upgrades are easy to install.

**100 MHz TURBO 601** from DayStar. Our newest PowerPC upgrade – is designed just for the Mac IICI. This new upgrade plugs into the Mac IICI's PDS connector, so it doesn't even use up a NuBus slot. Just plug in and go! You get pure, no-compromise speed, in a simple to install upgrade card that works with your existing memory and also allows you to run your older applications in '030 mode!

## GREAT NEWS FOR MAC IISI, IIVI & IIVX OWNERS.

MacUser magazine says DayStar's Turbo 601 will, "Turn your Mac IICI into a real PowerPC screamer." Now the Turbo 601 is available for the Mac IISI, IIVI, IIVX and Performa 600. It's an easy-to-install upgrade that will make your Mac 8 to 10 times faster. It's like owning a Power Macintosh 6100 for a lot less.

## 100 MHz POWERPRO 601! Need more speed?

With DayStar's new 100 MHz PowerPro 601, your Centris 610, 650, Quadra 610, 650, 700, 800, 900 or 950 runs faster than a Power Macintosh 8100—for considerably less than buying a new machine. PowerPro 601 is the PowerPC upgrade for power users.

**Plug  
In  
to  
Power**

**PLUG & PLAY.** Installation is a snap. All of DayStar's products come with detailed, photo-illustrated manuals, award-winning tech support and our 36-month warranty—the best in the industry.

**CALL DAYSTAR AND GO FASTER...800-962-2077**



Get the Fax! Call DayStar's FaxBack at 800-438-0370 and order documents #4006 & #4008

DayStar Digital, Inc., 5556 Atlanta Highway, Flowery Branch, GA 30542 (404) 967-2077 Fax: (404) 967-3018

© Copyright 1995. All brands and product names are trademarks or registered trademarks of their respective holders. Product specifications are subject to change without notice or obligation.

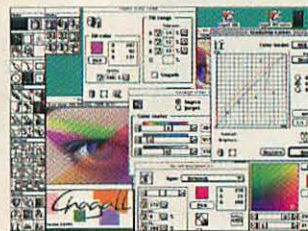
Circle 7 on reader service card

## New Products

ment to the larger network, or keep it private. While the bridge is active, you can't have routers active on the LocalTalk stub. \$99. Apple Computer, 408/996-1010, 800/538-9696; no fax.

### Chagall

This lean, mean, graphics machine brings painting and image processing to Macs that are lacking in the horsepower department. A 24-bit color program, Chagall supports filters (Sharpen, Blur, Invert, and others), masking, and unlimited undos. The software also includes a painting tool set with several different brushes. 4MB min. memory; requires System 7. \$299. Technosystems USA, 619/427-0108, 800/417-0108; fax 619/427-2180.



Chagall

### Fax Congress Now

Have you ever decided to give your U.S. Congressional representative a piece of your mind and then spent days trying to find the correct name, address, or fax number? Fax Congress Now contains contact information for the president, vice president, and every representative and senator in the 104th Congress. Users will also find biographical information and each politician's home state, political party, and committee assignments. Fax Congress Now also includes a basic text editor for drafting impassioned missives. \$14.95. Patriot Software, 713/467-7507, 800/316-6468; fax 713/467-3769.

### Insta Personal Information Managers

Each of these nine personal information managers is designed for a specific type of user, and all are based on Chang Labs' CAT relational database software. All the PIMs can handle contact information, scheduling, and to-do lists; each program is then customized with specialized forms. For instance, Insta Printer includes quote, estimate, and work-order forms for copy and print shops. Chang Labs is now shipping Insta Printer, Insta Invoice, Insta Photographer, Insta Realtor, Insta AddressBook, Insta Consultant, Insta Contact, and Insta Purchasing. \$19.95 each. Chang Labs, 408/727-8096; fax 408/252-3081.

### Looney Tunes Screen Saver

Swifter than you can say "sufferin' succotash," Sylvester, Tweety, Elmer Fudd, and the rest of the Looney Tunes cast of characters can be parading across your monitor while you're diligently not working. There are 12 After Dark 3.0 modules in this package, including Tasmanian Desktop, Marvin's Invasion (starring Porky Pig, Daffy Duck, and your favorite Martian), Puddy Tat Splat, and Desquettoppe D'Amour with Pepe Le Pew. \$29 estimated street price. Berkeley Systems,

510/540-5535, 800/251-1733; fax 510/540-5115.

### Miles of Tiles

Part of the Really Cool Texture series from Fractal Design, these textures are for use with Fractal Design Painter and Fractal Design Sketcher. The textures interact with those software packages' natural-media tools, making it possible to paint with textured ink or paint. The textures can also be used as backgrounds or applied to existing images to create a 3-D surface. The Miles of Tiles patterns replicate tile motifs, including Southwest and Navajo, Japanese, and Roman. Requires Fractal Design Painter 2.0 or Fractal Design Sketcher. \$29.95. Fractal Design Corp., 408/688-8800, 800/647-7443; fax 408/688-8836.

### StockTrend

Closely tracking the stock market used to involve reams of paper and hours of data processing by hand. StockTrend takes price-history data, then generates 30 common technical indicators and signals, including moving averages, trend lines, and relative strength index (RSI). Users can perform technical and intermarket analysis to evaluate investment opportunities (stocks, bonds, options, commodities, mutual funds, and others). Integrated Globaltec also offers subscriptions to DataFeed, a database service that provides the price-history data on either a per-quote or flat-fee basis. 4MB min. memory; requires System 7. \$210. Integrated Globaltec, 403/531-4888; fax 403/521-4889.

### Swap, Sqizz

Human Software is shipping two new Photoshop plug-ins. With Swap, you can create duotones, tritones, quadtones, ghosting effects, and CMYK gradations. With Sqizz, you can distort images using a brush—expanding or pinching, enlarging or shrinking areas of an image. You can also place an image on a grid and distort any point on the grid, or group and distort grid points simultaneously. Requires Photoshop 3.5; Sqizz requires an FPU and 15MB of free RAM. Swap \$199; Sqizz \$129. Human Software, 408/741-5101; fax 408/741-5102.



Swap, Sqizz

### The Totally Twisted Screen Saver

Warning: This item is rated PG for Pretty Gross. Were you the kind of kid that fried ants with a magnifying glass? Then this latest After Dark screen saver is for you. Get ready to run from 14 of the most maladjusted, demented, and downright repulsive screen savers ever to appear on the Macintosh. See toilets flap across the screen. Watch as Phlegm Boy leaves *continues*





"BEST NEW  
DRAWING  
TOOL"

# Feel The Power For Only \$149.

Feel the flexibility with dozens of new plug-in tools and palettes. Even use existing Illustrator plug-ins right within FreeHand!

Feel the power of page layout with text style sheets, spelling checker, columns, search & replace, copyfitting, linked text blocks, even multi-page support!

Feel the precision of "snap-to" grids, guides, and points—plus magnification of up to 25,600% on a massive 22' x 22' pasteboard!

Feel the possibilities of special effects like Fisheye Lens, 3-D Rotation, Multi-color gradients, Calligraphy Pen, even Drag 'n Drop color!

The editors of MacUser felt it. And now you can feel it too. The ultimate power and unlimited freedom in design and illustration, in new Power Macintosh native FreeHand 5. All for only \$149. We'll prove it.

On our free Showcase CD, you'll see what the power of FreeHand can do for artists, designers, illustrators, desktop publishers and multimedia mavens just like you.

So call for the FREE CD. Or upgrade for only \$149. And feel the power of FreeHand 5 for yourself.

**FREE SHOWCASE CD-ROM\***  
**1-800-326-2128**

ASK FOR OPERATOR #714

# MACROMEDIA®

Circle 86 on reader service card



FREEHAND



DIRECTOR



AUTHORWARE



MACROMODEL



SOUNDEDIT 16



FONTGRAPHER



## New Products

behind ugly surprises. Take potshots at mimes. Frolic in the Toxic Swamp, and watch as daredevils, cows, and fish bungee-jump with disastrous results. \$29.99 estimated street price. Berkeley Systems, 510/540-5535, 800/251-1733; fax 510/540-5115.

### TurboTalk

Who couldn't use a faster network? This software installs on networked Macintoshes and transparently speeds up network transactions. The company claims that it can make AppleTalk file transfers run twice as fast without hogging the entire network's bandwidth. Also, packets coming from a Mac running TurboTalk appear as completely normal to a Mac not running TurboTalk. \$69 per client; \$395 for AppleShare server. IPT, 805/541-3000; fax 805/541-3037.

### Walls and Reliefs

Another in the Really Cool Texture series from Fractal Design, the Walls and Reliefs textures include African mask designs, Celtic circles, hieroglyphs, and art deco-style reliefs. The textures can be applied to existing images to create a 3-D surface, applied with Fractal's natural-media tools as ink or paint, or used as backgrounds. Requires Fractal Design Painter 2.0 or Fractal Design Sketcher. \$29.95. Fractal Design Corp., 408/688-8800, 800/647-7443; fax 408/688-8836.

### Warlords II

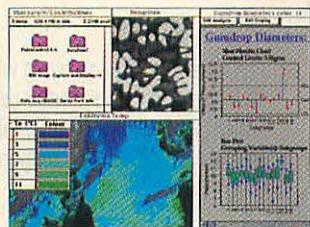
Return with us now to the days of yesteryear, when dragons were dragons

and sweaty beings swung, dropped, and hurled sharp objects at each other in search of glory and empire. Version two of this popular strategy war game features diplomatic relations, reworked color graphics, all new army types, random worlds to conquer, and smarter computer opponents. 4MB min. memory; requires System 7, 8-bit color. \$69.95. Strategic Studies Group, 904/469-8880; fax 904/469-8885.

## CD-ROMS

### Data Acquisition, Image Acquisition, Data Analysis CD-ROM

This second edition of the CD-ROM includes technical notes on and programs for acquiring, analyzing, and visualizing data on the Macintosh. It includes turbo drivers for GW Instruments' data-acquisition hardware and all publicly available virtual instruments for National Instruments' LabView engineering software. \$59 for nonmembers.



Data Acquisition, Image Acquisition, Data Analysis CD-ROM

MacSciTech Users Association, 508/755-5242; fax 508/795-1636.

### Frankenstein: Through the Eyes of the Monster

As your eyes flutter open, your last memory is of a rough rope noose snapping tight around your neck as you dangled from the gallows for a crime you didn't commit. But you weren't saved at the last second; you died, and now Dr. Frankenstein (played by actor Tim Curry) has resurrected you. In this live-action video adventure game, you must overcome mysteries, puzzles, and the frayed emotions of those around you as you search for your own humanity and the truth about Dr. Frankenstein. 4MB min. memory; requires 25MHz 68030. Price not available at press time. MacPlay, 714/553-6678, 800/969-4263; fax 714/252-2820.

### SimTown

Why let grown-ups have all the fun of urban planning? Designed for children ages 8 to 12, SimTown lets kids design, build, and manage their own neighborhood, complete with people; pets; and various types of houses, parks, streets, and stores. While the concepts are kept simpler for younger minds, players will have to deal with real-life problems, such as finding places for their Sims to live and work, transporting them around their virtual town, providing government services, and balancing growth versus environmental issues. \$44.95. Maxis, 510/254-9700, 800/526-2947; fax 510/253-3736.



Wacky Races

### Wacky Races

Penelope Pitstop, Dick Dastardly, Muttley, and the Gruesomes are all back on the road again in this adventure game adapted from the Hanna-Barbera cartoon of the same name. Users bet on the outcome of the Wacky Races in order to obtain driving cards that provide entry into different worlds. Once in the worlds, players must find Dick Dastardly and Muttley and foil their evil schemes. 4MB min. memory; requires Mac IIci, 8-bit color. \$49.95. Future Pirates, 310/396-6788, none; fax 310/396-0898.

## ACCESSORIES

### Boing Notebook Computer Covers

Here's a snug cover for your personal PowerBook. Boing covers are made out of neoprene, close with a zipper, and have an internal pocket for accessories. The covers are available with or without nylon webbing handles, and all the covers stretch tightly around the PowerBook in case you want to slip the machine inside another, more capacious, carrying *continues*

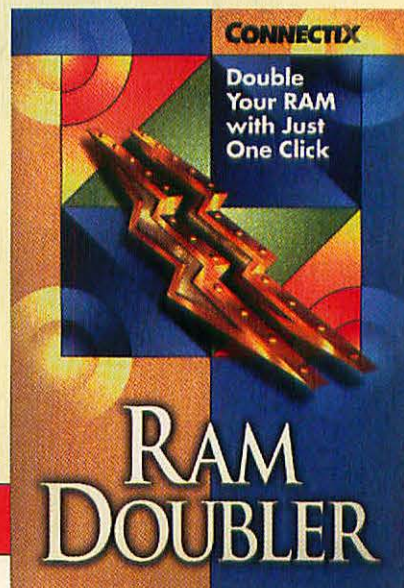
What Do You Say When You're Out Of Memory?

# I need RAM Doubler.

The more memory your Mac has, the more productive you'll be. But forget about adding SIMMs. RAM Doubler™ is software that doubles your Mac's memory. RAM Doubler *does what it says it will do.* ~Macworld. And you don't have to open your Mac. Just run RAM Doubler's 15 second installation and you can run twice as many applications – instantly. *May well be the best investment you make this year.* ~MacUser. You'll agree. Buy RAM Doubler today and double your RAM with one click. Your satisfaction is guaranteed. RAM Doubler is available wherever great software is sold (SRP \$99) or call us at **1-800-950-5880, Ext. 280.**

## CONNECTIX

System Requirements: Macintosh equipped with a 68030, 68040 or PowerPC microprocessor. System 6.05 or later, including all versions of system 7 • 4 MBs required (hard disk required for machines with 4 to 6 MBs) • Not compatible with Mac SE, original Mac Classic, original Mac LC or PowerBook 100 or Mac II without a 68851 PMMU or any accelerator that does not work with virtual memory.



© 1995 Connectix Corporation. 2600 Campus Drive, San Mateo, CA 94403 USA. 800-950-5880 • 415-571-5100 • FAX: 415-571-5195  
EMAIL: Support@connectix.com • RAM Doubler is a trademark of Connectix Corporation. All other trademarks are the property of their respective holders.

Circle 192 on reader service card



# STATISTICA/Mac

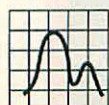
**STATISTICA/Mac™** A complete statistical data analysis system with hundreds of presentation-quality graphs integrated with all procedures. ■ In-depth, comprehensive implementations of: *Exploratory techniques; Descriptive statistics; Frequency tables; Large selection of nonparametric tests; Stepwise multiple regression methods with extended diagnostics; General nonlinear estimation (with predefined or user-specified models); Logit/Probit analysis; General implementation of ANOVA/ANCOVA/MANOVA/MANCOVA (designs of practically unlimited complexity, repeated, nested, incomplete, random, changing covariates, contrast analyses, post-hoc tests, custom designs); Stepwise discriminant function analysis; Canonical analysis; Large selection of time series modeling techniques with forecasting; Factor analysis; Cluster analysis (incl. hierarchical, k-means, and 2-way joining); Reliability/Item analysis; Log-linear analysis; General survival/failure time analysis (incl. life tables, group comparisons, and regression models); Distribution fitting (a large selection of continuous and discrete distributions); Curve and surface fitting and smoothing (incl. spline, DWLS, NEXP, and others); and much more.* ■ Manual with comprehensive introductions to each method and step-by-step examples (Quick Reference booklet explains all major conventions); balloon help ■ Extensive data management facilities: a super-fast spreadsheet of unlimited capacity with formulas (and *Publish and Subscribe*); merge/split files; "double identity" of values (numeric/text); BASIC-like data transformation programming language; Import/Export data and graphs from Excel, STATISTICA/w and other formats ■ Graphs integrated with all procedures (e.g., click on a correlation coefficient to produce the corresponding scatterplot and other graphs; click on a variable in the descriptive statistics table to produce a histogram and other graphs; click on an interaction effect in the ANOVA table to see a plot of interaction) ■ Large selection of 2-dimensional graphs: *Histograms (incl. multiple, clustered breakdowns, overlaid functions); Scatterplots (incl. multiple, weighted frequency, smoothed, function fitting); Multiple line and Range plots; Trend plots; Standard deviation plots; Data sequence diagrams; Contour plots; Box-and-whisker plots; Column plots; Bar graphs; Double pie charts; Scrollable dendrograms; Two-way joining plots; Curve fitting plots; Distribution comparison plots; Range plots; Probability plots; Amalgamation plots; Factor space plots; Casewise outlier and residual diagrams; ANOVA interaction plots; Multivariate (multiple) matrix plots; exploratory Draftsman plots with histograms, categorized (multiple) graphs, and many other specialized plots* ■ Large selection of 3-dimensional graphs: *3D surface plots (with data smoothing procedures, color or gray-scale shading, and projected contours); 3D scatterplots; 3D block scatterplots; 3D axis (space) plots; 3D spectral plots with adjustable planes; 3D line/ribbon plots; 3D sequence block plots; 3D histograms; 3D surface-smoothed frequency plots; and 3D range plots ("flying boxes")* ■ All 3D plots displayed in true perspective, feature interactive real-time rotation facilities (incl. continuous rotation) ■ Extensive graph customization options: all structural aspects of graphs (axes, scaling, patterns, colors, sizes, styles, regions, perspective, rotation, fitted functions, etc.); MacDraw-style tools with specialized "objects"; hi-res. graph and artwork embedding; page layout/preview; dynamic rulers ■ All output displayed in *Scrollsheets™* (dynamic, internally scrollable tables: all numbers can be instantly converted into a variety of on-screen customizable, presentation-quality graphs) ■ All contents of *Scrollsheets* can be saved as data and used for input, or be exported ■ Flexible facilities to perform analyses on specific subsets of data ■ Extremely large analysis designs ■ Unlimited size of files ■ Extended precision ■ Unmatched speed (e.g., on a Mac IIx, arbitrary rotation of a surface with 1000 points takes 1 second; correlation matrix 50x50 with 100 cases—less than 3 seconds; transposing a 5000 data points file—less than 2 seconds) ■ Full support for System 7 ("savvy") incl. *Publish and Subscribe*, Apple events, balloon help, "drag and drop," 32-bit, etc. ■ Price: \$695.

**Quick STATISTICA/Mac™** A subset of STATISTICA/Mac ■ All basic statistical modules of STATISTICA/Mac (*Basic and Descriptive Statistics; Frequency tables; Exploratory data analysis; Nonparametrics; Distribution Fitting; Stepwise multiple regression; ANOVA/ANCOVA*) ■ Manual with comprehensive introductions to each method and step-by-step examples (Quick Reference booklet explains all major conventions) ■ All data management facilities of STATISTICA/Mac (including interactive rotation of all 3D graphs, extensive on-screen graph customization facilities) ■ Price: \$395.

**Windows versions** also available (can exchange data with Macintosh versions): STATISTICA/w™ \$995; Quick STATISTICA/w™ \$495.

Domestic sh/h \$12 per product; please specify type of computer with order; 30-day money-back guarantee.

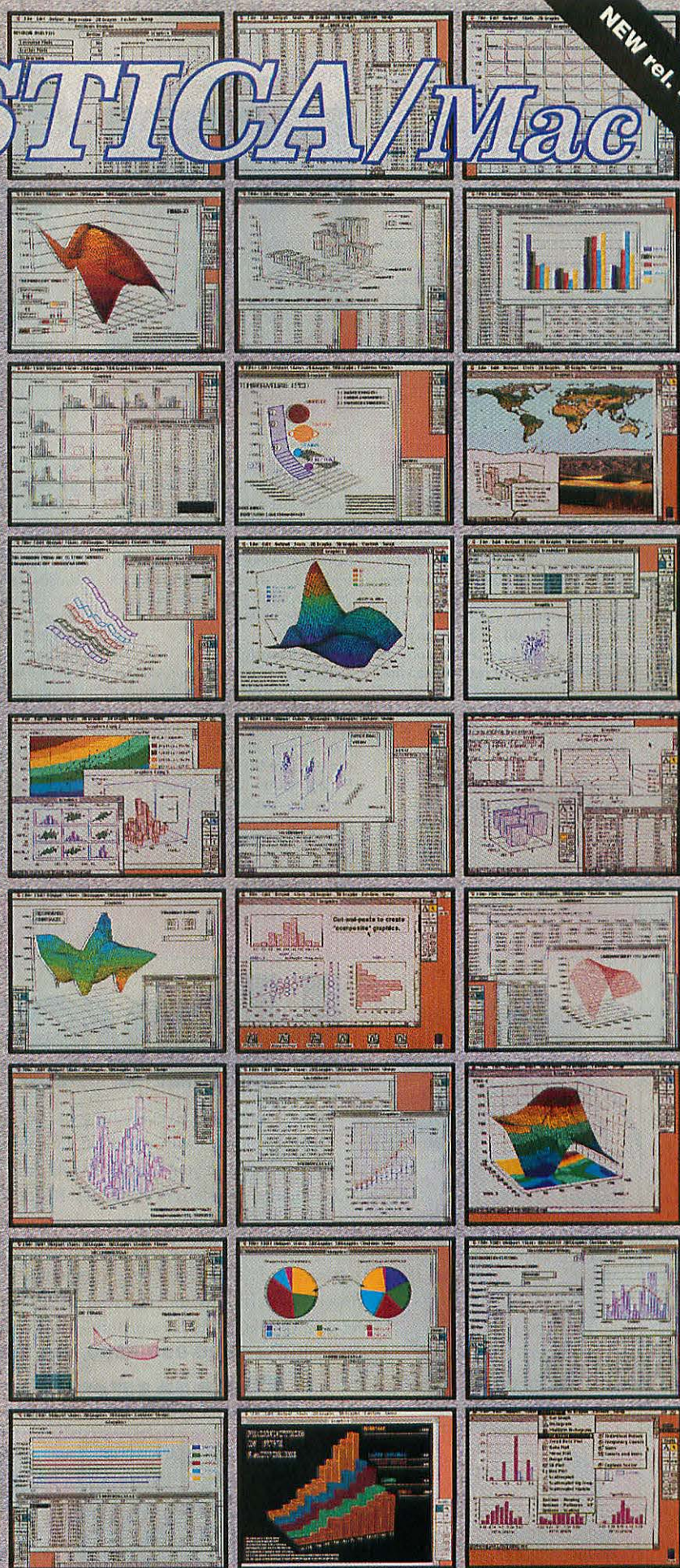
Circle 99 on reader service card



**StatSoft™**

2325 E. 13th St. • Tulsa, OK 74104 • (918) 583-4149  
Fax: (918) 583-4376

Overseas Offices: StatSoft of Europe (Hamburg, FRG), ph: 040/4200347, fax: 040/4911310; StatSoft UK (London, UK), ph: 0452/482822, fax: 0452/482856; StatSoft Pacific (Melbourne, Australia), ph: (03) 663 6580, fax: (03) 663 6117; StatSoft France (Paris), ph: (1) 45 66 97 00, fax: (1) 45 66 06 51; Available from other Authorized Representatives worldwide; Sweden: Akademi Data Science AB ph: 018-210035, fax: 018-210039; Finland: Statsoft Oy ph: 24-334676, fax: 24-333867; Belgium: Texma Newtech 010 61 16 28; South Africa: Osiris Technical Systems 12-663-4500; Japan (Macintosh): Three's Company, Inc. 03-3770-7600; Japan (Windows): Design Technologies, Inc. 03-3887-1110; StatSoft, STATISTICA/Mac, Quick STATISTICA/Mac, STATISTICA/w, Quick STATISTICA/w, and Scrollsheet are trademarks of StatSoft, Inc.; Macintosh, Mac IIfx, Excel and MacDraw are trademarks of their respective companies.





## New Products

bag. Executive and Director \$29.95; Executive Plus and Director Plus \$34.95. Zing Designs, 415/626-9454, 800/359-0015; fax 415/626-9455.

### Power Conditioner

If you have just a couple of batteries for your 100-series PowerBook, you might not want to pop for an external charger. But you want to condition your batteries so they don't suffer from memory effect. The Power Conditioner discharges the battery overnight, leaving you with a conditioned battery ready for a fresh charge. \$14.95. Shoreline Electronics, 408/987-7733; fax 408/987-7735.

## BOOKS

### Aether Madness

Billing itself as "An Offbeat Guide to the Online World," this book is divided into four sections. The first, Orientation, sets the hardware and software stage for the novice. Travel Tales covers independent BBSs, online services, and the more common Internet services (Usenet, FTP, Gopher, the Web). The Glossary is a guide to cyberspace terms, and the Resource Guide helps readers find what they need. Written by Gary Wolf and Michael Stein. 312 pages. \$21.95. Peachpit Press, 510/548-4393, 800/283-9444; fax 510/548-5991.

### Director 4 For Macintosh: Visual QuickStart Guide

The Visual QuickStart Series books consist primarily of illustrations, with text



*Aether Madness*

playing a supporting role. This book about Director 4 teaches readers how to animate text and graphics, use sound, set scene transitions, and add interactive controls to movies. The book is co-authored by Helmut Kobler and Andre Persidsky. 220 pages. \$18.95. Peachpit Press, 510/548-4393, 800/283-9444; fax 510/548-5991.

### E-Mail Security

Subtitled *How to Keep Your Messages Private*, this book discusses the issues of privacy and electronic mail, alerting users to how a message might be intercepted, read, copied, or altered, and how they can enhance the privacy of their own E-mail. Author Bruce Schneier covers encryption, authentication, patents, governmental regulations, and export law, and compares software designed to help

you keep your private thoughts private. 352 pages. \$24.95. Wiley & Sons, 212/850-6630; 212/850-6799.

### The Hitchhiker's Guide to America Online

Need help navigating one of the largest commercial online services? Author Charles Bowen offers a road map of America Online's procedures, features, and fine points. The book is organized alphabetically and cross-referenced, offering specific text on individual features and broad overview articles on general subjects. Readers will also learn about AOL's social environment. 385 pages. \$21.95. MIS:Press, 212/886-9200, 800/488-5233; fax 212/633-0748.

### Modems For Dummies, Second Edition

Whether you're a fumble-fingered novice or a weathered veteran of the Internet, this book (published by Macworld's sibling company, IDG Books Worldwide) will bring you up to date on the latest modem hardware and software. Author Tina Rathbone covers everything from what plugs in where, to tips on cruising online services and the Internet. 496 pages. \$19.99. IDG Books Worldwide, 415/655-3000, 800/762-2974; fax 415/655-3299.

### Personal Finance on Your Computer

Even the most sophisticated computer guru can be reduced to a sniveling puddle of slime by the simplest financial planning. Author Phil Robinson teaches

readers how to handle household and small-business finance, from budgets to cash management. There are specific examples and hands-on tutorials, as well as lots of advice on how to make your financial system mesh with the software you purchased. 352 pages. \$29.95. MIS:Press, 212/886-9200, 800/488-5233; fax 212/633-0748.

### Using Computer Bulletin Boards

Privately owned and operated bulletin-board systems (BBSs) don't get the same limelight as the big commercial online service providers, but there's a wealth of resources out there if you're willing to do a little exploring. In the third edition of his book, author John Hedtke teaches novices about BBSs and basic telecommunications concepts. He then moves on to create a hands-on guide for intermediate and advanced users, covering everything from the Internet to major online services; to smaller, private BBSs. There are also tips on how to set up your own BBS. 550 pages. \$29.95. MIS:Press, 212/886-9200, 800/488-5233; fax 212/633-0748. **m**

To have your product considered for inclusion in *New Products*, send an announcement with product name, description, minimum memory, peripherals required, pricing, company name, and phone number to New Products Editor, *Macworld*, 501 Second St., San Francisco, CA 94107. *Macworld* reserves the right to edit all product announcements.

## What Do You Do With A \$100 Digital Video Camera?

# Have A Ball.

QuickCam™ includes everything you need to make movies and take pictures with your Mac. Plug in one cable, install the software and you're ready to roll. Add still photos to documents, newsletters, databases. Record QuickTime® training movies, video conference, create animated cartoons – all for around \$100. Works with all QuickTime compatible software and on all QuickTime compatible Macs, including PowerBooks®. It's easy, fun, and your satisfaction is guaranteed. Get your QuickCam today where fine computer products are sold or call us at **1-800-950-5880, Ext. 280.**

## CONNECTIX



MAKE MOVIES



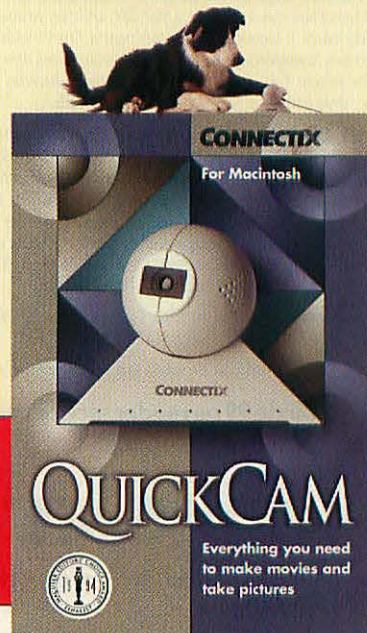
VIDEO CONFERENCE



TAKE PICTURES



BE CREATIVE



© 1994 Connectix Corporation. 2600 Campus Drive, San Mateo, CA 94403 USA. 800-950-5880 • 415-571-5100 • FAX: 415-571-5195. QuickCam is a trademark of Connectix Corporation. QuickTime and PowerBook are registered trademarks of Apple Computer, Inc. All other trademarks are the property of their respective holders.

Circle 191 on reader service card



# Revolutionizing an industry happens once in a lifetime. Okay, maybe twice.



*COLOR LASER COPIER 800*

**W**hen the world asked for color, Canon responded with the revolutionary Color Laser Copier. Today Canon is answering your color needs with another visionary advance—the Canon Color Laser Copier 800 and 700 color solutions.

This extraordinary breed of copiers produces images so sharp, so vivid, they're virtually indistinguishable from the original. And Canon copiers are highly productive, too.

They make a swift seven full-color copies per minute on a variety of materials including card stock.

Auto-feed OHP transparencies efficiently by cassette. Make multi-page documents effortlessly with the optional Recirculating Document Feeder and Sorter. And the Color Laser Copier 800 is the first color copier ever to offer *Auto Duplexing* for automatic two-sided copies.

You can also transform these exceptional color copiers into ultrafast, full-color, plain paper printers with optional print controllers and Intelligent Processing Units (IPUs), so you can make brilliant color output directly from your computer or network.

For a free *Color Solutions Guide* that will tell you more about the Canon Color Laser Copier 800 and 700, as well as the rest of our color copier line, call 1-800-OK-CANON. When the rest say you can't, Canon says you can.

**N O W**

**Y O U**

**C A N**

**Canon**



# HOT!



17779



19613 KPT Convolver



18831



15671

7612

<b>VISIONEER</b>	
17779 PaperPort .....	<b>\$379</b>
<b>CONNECTIX</b>	
14789 Ram Doubler 1.5 .....	<b>\$55</b>
<b>SONY</b>	
15671 SRS-D2KPC Speaker System .....	<b>\$149<sup>95</sup></b>
<b>HSC</b>	
19613 KPT Convolver .....	<b>\$129<sup>95</sup></b>
<b>SUPRA</b>	
18831 SupraFAXModem 288 V.34 (ext.) ...	<b>\$229<sup>95</sup></b>
<b>QUARK</b>	
7612 QuarkXPress 3.3 .....	<b>\$599<sup>95</sup></b>

## MULTIMEDIA SUPER BLOWOUT DEAL!

ONLY  
**\$29<sup>95</sup>**  
19352



Get in on the best multimedia value pack deal going! Softkey's One Stop CD-Shop features 10 fabulous titles...less than \$3 each! *Time Man of the Year, Dinosaur Safari, Key Gourmet, Who Killed Sam Rupert?, Key Fonts, Key Clip-Art, Wild Places, Instant Calendar, Parenting and Key Photo Clips.*

## OUR POLICY

- VISA, MASTERCARD, AMERICAN EXPRESS, and DISCOVER cards. No surcharge.
- Most of our products are covered by manufacturer's warranty.
- We are not responsible for typographical errors.

## EVERYTHING OVERNIGHT®

Continental U.S.: Shipping Charges: \$3 per order; please add an additional \$10 for each desktop system, scanner, printer, monitor or power backup. Or you may elect FREE UPS Ground shipping on orders which include the hardware mentioned above. Barring events beyond our control, all credit card orders phoned in weekdays by 3 a.m. ET will ship Airborne Express for delivery the next business day. (Some orders ship UPS Ground for next day delivery). Saturday delivery available to many areas upon request at no additional charge. Order all day Saturday thru noon Sunday for Monday delivery. Some areas require an extra day delivery.

AP0/FPO, International orders and Hawaii, Alaska, Canada, Puerto Rico & U.S. Virgin Islands: Shipping may require additional time and charges. Please call for information. All other areas: Please call 603-446-3333 or FAX 603-446-7791 M-F 9 a.m.-5:30 p.m. ET.

**OPEN 24 HOURS A DAY!**  
Our order lines are open 24 hours a day, 7 days a week.

595MW

## COMMUNICATIONS

1674 CompuServe Member/Navigator.....	\$72.00
10080 Delrina Fax PRO for Macintosh.....	59.95
7710 Global Village PowerPort Gold.....	269.95
17446 Global Village TelePort Gold II.....	139.95
14767 Global Village TelePort Mercury.....	299.95
11419 Hayes ACCURA144+FAX144.....	124.95
18188 Hayes OPTIMA V.34+FAX144.....	469.95
11156 Lynx Ring Director RD-200.....	69.95
8478 MDS FaxModem 14.4.....	99.95
4879 Practical Periph MC144MTII.....	119.95
17968 Practical Periph MC288MTII V.34.....	229.95
7639 STF Tech. FAXstf3.1.....	64.95
17108 Supra Express 144 Plus.....	99.95
5337 Supra SupraFAXModem 144LC.....	139.95
6619 Synergy VersaTerm Pro.....	169.95
11842 U.S. Robotics Sportster 14.4 Fax.....	129.95
17048 U.S. Robotics Sportster V.34 Fax.....	274.95
16390 Ventana Press Internet Mem. Kit.....	49.95
17470 Zoom FaxModem V.34.....	199.95
14152 Zoom VFX 14.4V FaxMod w/Voice.....	149.95

## INPUT/OUTPUT

15456 Adesso Extended Mac Keyboard.....	\$69.95
2374 CoStar LabelWriter XL.....	239.95
12591 GDT StyleScript.....	99.95
15858 HP DeskWriter 560C.....	499.95
17589 Kensington Thinking Mouse.....	99.95
13748 UMAX UC630 Color Scanner.....	599.00
15345 Xerox TextBridge OCR Software.....	74.95

## EDUTAINMENT

13714 Delta Tao Erics Ult. Solitaire.....	\$34.95
2316 Lucas Arts Rebel Assault CD.....	49.95
13818 Maxis SimCity 2000.....	39.95
3675 Starplay Crystal Caliburn.....	36.95
14769 Velocity Spectre VR CD-ROM.....	39.95

## NETWORKING

2775 Asanté 8 Port 10BASE-T Hub.....	\$199.95
2562 DaynaPORT Ethernet LC (internal).....	89.95
11499 Farallon EtherWave PN802 Trans.....	109.00
14545 Farallon Timbuktu Pro.....	135.00
18524 MDS 16 Port Hub.....	399.95
15490 Sonic 10BASE-T Transceiver.....	49.00

## STORAGE

17793 FWB 700MCB Hammer PE Ext.....	\$599.95
16820 Iomega Bernoulli 230MB Remov.....	499.95
16852 Iomega 230MB Cartridge.....	99.95
18148 MDS Ext. 365MB Quantum HD.....	299.95
17960 MDS Ext. Chiron 525 2x CD-ROM.....	229.95

## ACCESSORIES

5579 Adesso PowerBook Battery.....	\$59.95
19330 Curtis Printer/Wkst. Stand.....	49.95
1092 Kensington Notebook Traveler Dlx.....	75.00
15422 Sony D90M Cartridges (5 Pack).....	50.00
6201 Tripp Lite Isobar 8 Surge Sprsr.....	59.00

## GO TO THE HEAD OF THE CLASS!

WordPerfect Student Essentials includes six Mac programs every student needs...for less than \$70! You get WordPerfect 3.1, plus Random House Webster's Dictionary, French, German, and Spanish language modules, 90 preformatted templates for reports and term papers, and 100 fonts.

**\$69<sup>95</sup>**  
16309

While Supplies Last



We Carry  
More Than 10,000  
Products for Your  
Mac & PC!  
**CALL FOR A  
FREE  
CATALOG!**  
All at low discount  
prices!



**Need  
Memory?  
Call us  
for the  
lowest  
prices  
around!**

## BTI BATTERY SOLUTIONS FOR YOUR LAPTOP!

Power your Duo with the MC-T4 Internal Battery!  
Also available from Battery Technologies, Inc.:

15544 PB SlimPack Battery.....	\$49.95
4699 Slim Pack Battery for Duos.....	249.95
9842 MC180 Powerpage Battery.....	74.95
19510 SlimPack for PB500 Series.....	279.95

**radius**

**Advanced Video  
Control Technology  
at New Low Prices!**

The SuperMatch 17XL provides a 17" screen, automatic syncing, and digital controls for customizing your display environment. Factory-set 6500-degree Kelvin white point and resolutions to 1024 x 768—with 16 user-definable resolutions.

And for faster graphics performance just add:

2774 PrecisionColor 8XJ (8 bit) ...	\$479.
15558 SpectrumPower 1152 (24 bit).....	699.95

ONLY  
**\$799**  
15796





## BUSINESS

14187	Best!Ware Mind Your Own Busin..	\$79.95
16850	Best!Ware MYOB w/Payroll.....	139.95
5863	CheckMark MultiLedger.....	119.95
5862	CheckMark Payroll.....	79.95
3903	ClarisWorks 3.0.....	119.95
1668	Computer Assoc Cricket Graph 3 ..	89.95
12974	DeltaPoint DeltaGraph Pro III.....	139.95
11721	IdeaFisher for Mac.....	95.00
11269	Inspiration.....	134.95
15070	Jian Business Plan Builder.....	79.95
5454	Microsoft Office for Mac 4.2.....	479.95
8010	Niles EndNote Plus.....	169.95
16143	Nisus Writer.....	279.95
16884	Nisus Writer with Language Key.....	334.00
7447	SoftKey KeyCad Complete.....	29.95
14790	SoftKey WriteNow 4.0.....	44.95
16548	Symantec ACT 2.0 Upgrade.....	49.95
2986	Timeslips Timeslips III.....	194.95
4711	WordPerfect 3.1 Ver. Upgr. W.S.L.....	58.95
17237	Writeplace Writing Coach.....	59.95

## VIDEO

17314	Magnavox 14" Color Display.....	\$299.95
13054	NEC MultiSync 2V Monitor.....	329.95
17195	NEC MultiSync XE15.....	569.95
16943	Radius Spigot Power AV.....	799.95
18558	RasterOps Clear Vue Color 17".....	799.00
19156	RasterOps Prism 24 Bit Video Card	699.00
18510	Sony 17sf Trinitron.....	949.00

## GRAPHICS

1736	Adobe Illustrator 5.5.....	\$389.95
17249	Adobe PageMaker 5.0.....	549.95
16335	Adobe Photoshop 3.01.....	569.95
16119	Corel Gallery CD.....	39.95
15101	Dubl-Click IconMania.....	29.95
9034	Equilibrium deBabelizer Toolbox.....	259.95
16746	Extensis PageTools Extensions.....	99.95
16962	Fractal Design Painter 3.0.....	349.95
12983	Frame Tech FrameMaker 4.0.....	599.95
11724	Graphsoft MiniCad+ 5.0.....	599.95
15989	HSC Kai's Power Tools/KPT Bryce.....	189.95
19613	HSC KPT Convolver.....	129.95
19626	HSC Power Photos.....	129.95
16742	MacArtist Magazine ImageFonts.....	39.95
5087	Macromedia Director 4.0.....	899.95
17341	Macromedia Fontographer 4.1.....	369.95
17252	Macromedia FreeHand 5.0.....	399.95
4761	RayDream Designer.....	249.95

## UTILITIES

7927	CE Software QuickKeys 3.01.....	\$99.95
17537	Central Point MacTools Pro 4.0.....	99.95
12093	DataViz MacLink+ Translators Pro.....	95.00
4803	Datawatch Virex 5.5.....	69.95
16857	Insignia SoftWindows Mac.....	279.00
4433	Insignia SoftWindows Power Mac.....	289.00
5176	Symantec Anti-Virus Mac.....	69.95
16133	Symantec DiskDoubler Pro 1.1.....	75.95
3955	Symantec Suitcase.....	64.95

## TURN GRAPHIC IDEAS INTO REALITY!



The Macromedia Graphic Design Studio includes: *Macromedia FreeHand*, *Fontographer*, *MacroModel & Fractal Design Painter*. Together, they give you the power to realize your artistic vision... The opportunities are endless!

Save \$1000 off Retail!  
**\$699<sup>95</sup>**  
20046

## THE NEWEST IN POWER-PRICED PORTABLE STORAGE!



Includes 100MB Cartridge

SCSI Version  
**\$199<sup>95</sup>**  
19171

The Zip Drive from Iomega is the new standard in portable removable storage. It works like a hard drive and gives you unlimited storage on inexpensive 100MB cartridges. The unique Zip Tools software helps you track, organize, and find everything. Setup is a snap with plug-and-play direct to your SCSI or parallel port connector. Includes one 100MB cartridge.

The Zip Drive has sustained transfer rates of up to 1.25MB/second, parallel throughput up to 20MB/minute, and drive short format time of only 5 seconds. Enjoy no fail reliability and long life with truly useful storage to meet your high capacity needs—in a small, economical package. 1 year manufacturer's warranty on drive; limited lifetime warranty on cartridges.



Extra 100MB cartridges...As low as \$15.99 in quantity!

# MacConnection®

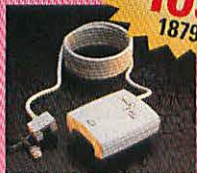
## 800-800-3333

OR FAX YOUR ORDER  
**603-446-7791**

ORDERS  
BY 3 A.M. ET  
SHIP FOR  
NEXT DAY  
DELIVERY!

## HOOK UP WITHOUT HASSLES!

InsideLine from Radish Communications Systems enables your data/faxmodem to work with the telephones of most PBX, digital, and multi-line business phone systems. Supports modem data transfer rates of up to 28.8 Kbps.



**\$109<sup>95</sup>**  
18792

ONLY  
**\$399<sup>95</sup>**  
18729

STOP  
WASTING  
TIME!

QUAD  
SPEED!



MDS is known for quality and price. Take the MDS Toshiba 3501 External 4X Quad Speed CD-ROM Drive for Macintosh. It's very affordable and features a 256K data buffer, 150ms average access time, 600 Kb/sec data transfer rate, 200,000 hours MBTF, plus it's multi-session PhotoCD compatible. The 3501 also includes a sampling and digital filter for CD audio and can be used as an independent CD audio player.

**FREE FWB CD-ROM ToolKit & Type On Call CD included!**  
**Over \$100 of FREE software!**

UPGRADES

17276	Macromedia FreeHand 5.0 Version .....	\$148 <sup>95</sup>
16127	Macromedia Director 4.0 .....	\$369 <sup>95</sup>
17024	Fractal Design Painter 3 .....	\$148 <sup>95</sup>
16323	Symantec Norton Utilities Mac 3.1 ..	\$39 <sup>95</sup>
16552	Microsoft Word for Mac 6.0 (*Price after \$30 mfr. rebate for owners of a previous version-Expires 8/31/95) ..	\$89 <sup>95</sup> *
16551	Microsoft Office for Mac 4.2 (*Price after \$40 mfr. mail-in rebate- Offer expires 8/31/95) .....	\$239 <sup>95</sup> *



# Reviews

## Macromedia FreeHand 5.0

### Draw Program

**PROS:** External modules available as tools; supports Illustrator plug-ins; eyedropper tool lifts colors from imported TIFF images; improved color naming and modifying; fully functioning paragraph styles; can hide and show the tab ruler; fast.

**CONS:** Interface still needs some reigning in; worthless smudge tool; Multi-Color Fill function not integrated into standard gradients.

**COMPANY:** Macromedia (415/252-2000).

**LIST PRICE:** \$595.



I USED TO CHASTISE professional drawing stalwarts FreeHand and Adobe Illustrator for not being aggressive enough with their upgrades. No more. In the past two years, both programs have changed substantially. If FreeHand 5.0 is any indication, the trend is hardly in decline.

Name a feature in Illustrator 5.5 that has been absent in FreeHand and you're liable to find it in FreeHand 5. Among the many features no longer unique to Illustrator, you can now count custom guidelines, multiple-color gradients, external special-effects options, multiple views of a document, text search and a spelling checker, one-key cloning, color-modification controls, and object-specific trapping. FreeHand 5 also throws in its own unique features, including tab leaders, style sheets, and better object slicing.

FreeHand 5's interface, however, remains as awkward and bulky as that of its predecessor. FreeHand 4 users will probably feel right at home, but I doubt if people who shied away from that version will be any happier with version 5. Oh sure, now and then the new FreeHand makes an effort to bring old users into the fold. For example, you can now choose to edit



text either directly on the page or inside a dialog box, and you can hide the annoying text ruler. But the overall picture remains one of a program ready to burst at the seams, with 13 palettes and more than twice as many dialog boxes as in version 4. If you avoided FreeHand 4, prepare yourself for a substantial learning curve. The good news is that this time the payoff is even bigger.

### FreeHand Extends Its Reach

Like Illustrator, Adobe Photoshop, and others, FreeHand now supports external modules—which it calls Xtras—that add functions to the program. It can even use your Illustrator plug-in filters; just make aliases for them and place them in the Xtras folder. In my testing, the only Illustrator filters that didn't work inside FreeHand 5 were the automatic-selection

functions. Best of all, FreeHand's Xtras are accelerated for Power Macs (Illustrator's filters run in the slower emulated mode in FreeHand).

In Illustrator, plug-ins always appear as commands under the Filter menu, but Xtras can manifest either as tools or commands. The tools are generally successful, allowing you to draw spirals and distort selected objects by dragging inside the drawing area. (Illustrator forces you to negotiate inside static dialog boxes.) Among the Xtras is the 3-D rotation tool, which lets you spin objects in three-dimensional space; you define the perspective and horizon point before using the tool. To use the fish-eye lens tool, you draw an ellipse that represents the shape of the lens; FreeHand distorts the object around it. You can't preview the fish-eye effect during the drag, but the effect is



quick and reliable. The only disappointment is the smudge tool, which creates a blend from a selected shape to a specified color. For some reason, you can't modify the number of steps in the smudged object the way you can in a blend.

Though FreeHand's Xtra tools all reside in a single palette, the Xtra commands are slightly less predictable. Some appear only in the Xtras menu, others appear both in the Xtras menu and as buttons in the Operations palette. This duplication wouldn't matter if FreeHand 5 didn't mix in a few non-Xtras just to make life confusing. The Blend command, for example, is now available as a command in the Path Operations submenu, as a button in the Operations palette, and as yet another command under the Xtras menu—and it's not even an external module; it's built into the FreeHand application. I suppose the intention is to make Blend (and ten similarly thrice-featured non-Xtras in the program) easier to find, but in practice it makes the program bulkier and harder to navigate. Microsoft Word and Excel also duplicate commands as buttons, but in those programs you can customize the buttons to fit your work habits, something I wish FreeHand offered.

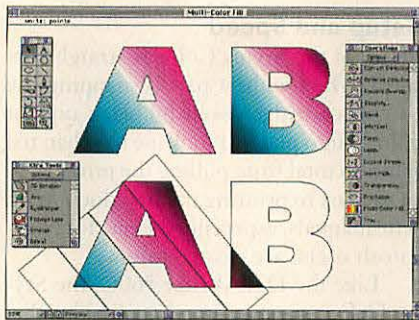
### Color Me Pleased as Punch

FreeHand 5 includes several new fill and stroke functions that handily outperform their Illustrator counterparts. For example, the Xtra eyedropper tool lifts colors from objects as well as from imported TIFF images. This means you can create entire color libraries from a single 24-bit photograph. Illustrator imports EPS images only, and neither it nor FreeHand can lift colors from this format.

FreeHand's attribute styles have been modified so you can define styles that affect just the fill, just the stroke, or both. This is the first time since FreeHand 2 that you can name fills and strokes independently. If styles aren't your bag, you can simply copy the fill and stroke attributes from one object and use keyboard shortcuts to immediately apply them to another object.

FreeHand now automatically names colors when you add them to the Color List palette. And if you find dragging colors is too much work, you can choose Name All Colors, a helpful Xtra, to name and list all colors applied to objects in your document.

Finally, FreeHand 5's Color Controls dialog box lets you adjust the colors applied to selected objects. For example, to convert a full-color drawing to gray scale, just decrease the Saturation setting to 0. You can also tint objects, lighten or



**Gradient Breakdown** When you apply the Multi-Color Fill function to two independent objects, as in the case of the letters A and B at the top of the screen, the gradient fills each object separately. To make a gradient flow across multiple objects in FreeHand, you join the objects. But if you join objects filled with multicolor gradients, the fill doesn't flow properly, as shown at bottom. This is because the multicolor gradient is actually several rectangles filled with two-color gradients and pasted inside the letters. (I've drawn in the outlines for the rectangles so you can better see what's going on.) To remedy this, reapply Multi-Color Fill.

darken them, and displace colors around the hue wheel. When you're finished, you can turn around and automatically add your new colors to the Color List palette. This is the first time I've seen a color-manipulation command like this outside an image-editing application.

If all of FreeHand were this good, I'd have no complaints. Unfortunately, one color Xtra, Multi-Color Fill, falls short of the mark. Although it lets you assign gradient fills with as many as 64 key colors—Illustrator limits you to 32—Multi-Color Fill leaves a lot to be desired. For starters, the feature isn't integrated into FreeHand's existing two-color gradient function. This means you can't drag and drop colors into a multicolor gradient or lift colors with the eyedropper tool. In fact, a multicolor gradient isn't a true fill at all. The gradient doesn't update to accommodate reshaped or joined paths (see "Gradient Breakdown"). Also, you can't transform the object independently of its fill without first ungrouping, and the gradient replaces any objects previously pasted inside the mask without warning. Finally, you can't name multicolor gradients, as you can in Illustrator, nor can you copy them from one object and apply them to another.

### Type on the March

FreeHand's type-specification options are still scattered throughout two palettes and several panels as before, but now you can bypass these controls by establishing fully functioning paragraph styles, like those in a word processor. When you edit a style sheet, FreeHand presents you with all character and paragraph attributes—

typeface, leading, tabs, paragraph spacing, even color—inside a single dialog box. As in FreeHand 4, you can apply style sheets either by selecting the text and then a style, or by dragging a style and dropping it onto any text in the document, whether selected or not.

FreeHand 5 also provides a spelling checker and a search-and-replace function. You can't search by style or automatically replace straight quotes with curly ones and make other "smart" punctuation adjustments, as in Illustrator 5.5. But I think most FreeHand users will manage to forgive these oversights when they find they can now hide and display the text ruler. Personally, I prefer Illustrator's free-floating tab ruler—which you can stretch and move at will, and which provides drop-down lines to more clearly demonstrate alignment—but FreeHand 5 is alone in offering tab leaders (as well as the wrapping tab stop introduced in FreeHand 4). Though I'd still like to see master pages and automatic page numbering, most users will likely prefer FreeHand over either PageMaker or QuarkXPress for creating small, design-intensive documents.

There's much more to praise in the new FreeHand. I haven't mentioned how you can magnify a drawing to a scale of 256 to 1, close enough to see the sweat on a fly. Nor have I mentioned how you can option-drag to clone objects, even while scaling or rotating; slice objects in free-form swipes with the knife tool; or hide and display palettes from the keyboard. You can also position objects on the Guide layer to serve as custom guides, though you can't reshape them while they're in the guide layer, nor can composite paths serve as guides, both disadvantages when compared with Illustrator. Meanwhile, the new trapping Xtra functions almost exactly like Illustrator's.

### The Last Word

All in all, this is the most impressive FreeHand to date. Granted, its interface needs some restructuring, and a few Xtras feel as if they were thrown in to help bolster a features list. And Illustrator 5.5 still provides better gradients, mask editing, custom guide control, scaling and rotating, graphing, and screen management. But FreeHand is the faster program—especially when it comes to text and Xtras—and it wins in the key areas of navigation, object blending, schematic drawing, color management, text handling, small-document creation, and special effects. In fact—and it's been a long time since I've been able to say this—if I had to recommend only one draw program, it would be FreeHand.—DEKE MCCLELLAND



# Stylus Color

## Color Ink-Jet Printer

**PROS:** Excellent output quality. **CONS:** Slow when printing at 720 dpi. **COMPANY:** Epson America (310/782-0770). **LIST PRICE:** \$699.



**T**HE STYLUS COLOR PRINTER IS Epson's entry into the rapidly expanding color ink-jet market until now dominated by Hewlett-Packard and, to a lesser degree, Apple. However, this late-comer, with its excellent output quality and reasonable price, should be able to pry many potential customers away from Apple and HP.

The printer's PC origins are obvious at first glance: the front panel offers one selection button for fonts such as Courier and Roman T, and another for economy or condensed mode—neither is a common feature on Macintosh printers. However, the printer also supports both parallel and serial printing (unlike the printers from Apple and HP); both ports are active simultaneously, and Mac and Windows software is included.

The Stylus Color currently supports QuickDraw only in 68000 mode, but a QuickDraw GX driver and native Power Mac support should be ready soon. A third-party developer is working on a software-based PostScript driver.

If you need to attach the printer to a network, an AppleTalk option is available for an additional \$149. This is definitely on the expensive side, since the HP DeskWriter 560C has built-in LocalTalk support, and the Apple Color StyleWriter 2400 can be shared via a host machine (these printers are in the same price range as the Epson; for more on the 2400, see *Reviews*, April 1995). Most people, however, won't want to use the Stylus Color over a network because it's just too slow.

## Setup and Speed

Setup of the Stylus Color is straightforward. The toughest part is snapping the two ink cartridges—one for black, one for color—into place. It took me less than ten minutes total from pulling the printer out of the box to printing my first document. The manuals, especially the one for Macintosh users, are easy to follow.

Like the DeskWriter 560C, the Stylus Color uses a single color cartridge that holds three inks. The problem with this approach—although manufacturers may claim otherwise—is that it's extremely unlikely that you'll use up all three colors at the same time. When you finish one color, you have to replace the whole color cartridge (\$35; \$17 for the black cartridge), even if you have plenty of ink left in the other two colors.

While setup takes only a short time, printing takes forever. In 720-dpi-resolution mode, the Stylus Color was easily one of the slowest color ink-jet printers Macworld Lab has ever tested. One of our test documents, a 4-page Adobe Page-

much faster, although not as fast as the speedy Apple Color StyleWriter 2400.

## Beautiful Output

The consolation for enduring slow printing is excellent output. At 720 dpi, gradients are smooth, colors vibrant, and details exceptional. The sharp, crisp text is notable for the lack of splattering (minute dots of inks around the characters). According to Epson, the use of piezoelectric print heads allows finer resolution and better control over splattering. For now, the Stylus Color is the ink-jet to beat in terms of image quality.

To get 720 dpi, however, you need Epson's special coated paper, which costs \$25 for 200 sheets. Using plain paper, you get output limited to 360 dpi. And although the printer supports legal-size paper, you won't be able to print the 8½-by-14-inch format in 720 dpi because Epson doesn't sell its coated paper in legal size. Even at 360 dpi, though, the output looks better than that provided by the HP or the Apple printer. Transparency print-outs are limited to 360 dpi.

Although the Stylus Color outputs color well, it would benefit from a color-management scheme. Unlike Apple's and Hewlett-Packard's, the Stylus Color's software has no built-in color management. The Stylus Color software for Windows, though, includes gamma correction for each color, a preview of color-corrected output, and plenty of dithering patterns to choose from. Epson says it might incorporate these features into future versions. Even without color correction, the Stylus Color prints better than its rivals.



RICHARD NETHEMAYER

Maker newsletter, took more than 1½ hours to print—an hour or so more than the DeskWriter 560C needed. The reason for this slowdown is the massive amount of data generated for the print. Mathematically, a 720-dpi file represents four times the data of a 360-dpi image. Of course, pushing this huge amount of data through the slow serial port doesn't help. At 360 dpi, the Stylus Color prints

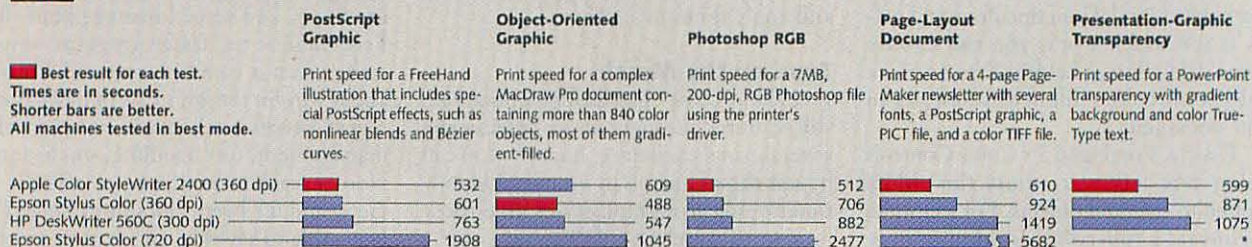
## The Last Word

Despite the Stylus Color's shortcomings, Epson has built an ink-jet with superb output quality. I highly recommend this printer for anyone who needs excellent output on a small budget.—MARK HURLLOW



## How Fast Is the Epson Stylus Color?

■ Best result for each test. Times are in seconds. Shorter bars are better. All machines tested in best mode.



\*Doesn't support 720-dpi transparency printing.



# Presenter Professional 3.0

## 3-D Multimedia Tool

**PROS:** Integrated 3-D sound; improved animation controls; excellent modeling tools.

**CONS:** Import/export and Phong-shading functions not yet implemented. **COMPANY:**

VIDI (818/358-3936). **LIST PRICE:** \$1995.



PRESENTER PROFESSIONAL, the oldest living Macintosh 3-D modeling, rendering, and animation package, was showing its age. In comparison with younger, flashier offerings, it looked staid and felt a little awkward.

But no more. Presenter Professional 3.0 not only holds its own in an increasingly competitive 3-D market, it breaks new ground by integrating audio into its 3-D design environment. Presenter Professional 3.0 has brought talkies to the world of 3-D animation.

In addition, Presenter Professional 3.0 has been completely rewritten. It's now native for the Power Mac, as well as compatible with 680X0 machines. Plus, it incorporates plug-ins, letting you add modeling tools, rendering engines, and animation routines. The program's once-weak animation component has been strengthened by more-precise controls. General interface improvements provide a clearer, more understandable work space and better access to object information in both the modeler and animation modules. And the price has been reduced to \$1995 (the modeler alone used to cost that), so Presenter Professional 3.0 is a better value, too.

### Sound Investment

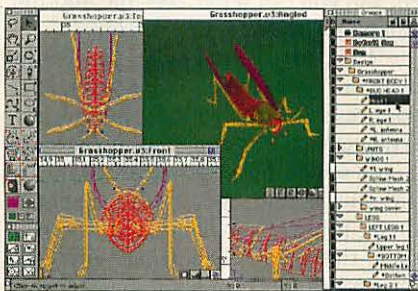
Usually sound is added to animations in postproduction, where rendered models are composited with backgrounds and the finished frames are combined with audio tracks. However, with Presenter Pro 3.0, sound is just another element in the 3-D scene. You attach sounds to an object by dragging them into the object's information dialog box, just as you would a texture or a color attribute.

To hear the sounds, you place microphones in proximity to the objects that produce them. Microphones can be located anywhere in the 3-D scene, and you can calibrate their sensitivity to make their hearing more or less selective. For example, a mike could be set to pick up only the sound of a nearby object, or its

range extended to include some background noise as well. Careful deployment of microphones can produce subtle effects, such as approaching footsteps.

Integrating sound into the 3-D environment is a wonderful idea. Professional animators and multimedia producers will appreciate the ability to hear aural effects at the same time they preview object motion, letting them correct synchronization problems on the spot.

VIDI has also improved Presenter Pro 3.0's lighting options. New settings let you adjust a light's intensity, permitting more subtle shadows and brightness-falloff effects. And a new projector light lets you shine PICT images and QuickTime movies on the surface of 3-D



**New Look and Feel** Interface improvements give Presenter Professional 3.0 a well-conceived and logically implemented modeling environment.

objects. Rather than simply displaying images on a surface, the program actually projects the image—so objects passing in front interrupt the beam, like people standing in front of a movie screen.

New animation plug-ins provide spline-path controls for object motion and apply the laws of physics to animated objects, to suggest the effects of gravity, wind, and collisions. And you can fine-tune the behavior of every object, camera, and light by adjusting its individual velocity graph, for smooth motion transitions.

A new time-line script window puts all this animation power together. In this window every element in the production can be addressed and controlled individually. You can double-click on an object's name to access its information dialog box for adjusting attributes. (You can also access the dialog by double-clicking on the object itself.) All in all, Presenter Professional has been transformed into a very competent animator.

### Sound Modeler

Presenter Professional's excellent 3-D modeler is spline-based, so it lets you edit

shapes by pushing or tugging on their vertices as if working with clay. In addition, Presenter Pro can now perform Boolean (union, difference, and intersect) functions. The program calculates the interaction of meshed surfaces to produce a new meshed object, letting you use one object to carve another.

The program comes with rendering engines for ray tracing and for producing stereograms, those "hidden 3-D" images that have become so popular. Now a plug-in, the ray tracer has been rewritten and optimized, so rendering is faster than in previous versions. The program's excellent MacRenderMan interface, which lets you apply and manipulate RenderMan shaders, has been retained, and VIDI plans to include a Phong renderer in the future.

Presenter Pro 3.0's documentation is improved over that of previous versions. Separate manuals for the modeler and presenter modules provide reference sections and a series of simple tutorials. These manuals are better organized and more concise than were the old documents, but they still only scratch the surface. Novices should expect to spend some time working through both volumes. As you gain expertise, you can graduate to the *Human Model Super-Tutorial*, an extensive modeling exercise covering the creation of a human figure. This tutorial is a great addition that offers a rare, step-by-step introduction to constructing a complex model.

Presenter Pro 3.0 has made great strides, but it's not completely finished. In addition to the missing Phong renderer, import/export functions are not yet implemented, and the projected light source didn't work with the ray-trace renderer. So more work needs to be done (VIDI has announced a 3.1 upgrade, which should be shipping by the time you read this).

### The Last Word

Presenter Professional 3.0 is a notable improvement over its predecessors. Excellent modeling and rendering capabilities are now complemented by well-conceived, professional-level animation tools. And it integrates sound, something no other 3-D program does—on any platform. Presenter Professional 3.0 is still at the high end of the price spectrum, but professional animators and multimedia producers will probably find it a bargain.

—CARLOS DOMINGO MARTINEZ



# PaperPort

## Desktop Scanner

**PROS:** Compact device; self-launching image software; document-management and -annotation tools; built-in OCR and printer importing; links to fax and text applications. **CONS:** None.

**COMPANY:** Visioneer (415/812-6400).

**LIST PRICE:** \$399.



CLOSE YOUR EYES AND IMAGINE A magic slot located conveniently behind your keyboard. When you feed papers into it—magazine clippings, letters, invoices, business cards—their images are captured immediately to your Mac's hard disk. Now, imagine further that moments after you feed a document into the slot its image appears on the Mac's desktop, along with other images of other captured papers; you can arrange, sort, stack, annotate, optically recognize (as in OCR), print, fax, and E-mail these files just as you would normally do with the originals. Finally, cast yourself three months into the future, when you quickly retrieve one of these images by a keyword search and send it as E-mail to a colleague. You've now imagined Visioneer's PaperPort.

### Smart Concept Made Real

The PaperPort is a very clever combination of elegant hardware and intelligent software that helps you electronically capture, store, annotate, retrieve, fax, and print all those odd bits of paper that clutter your life. Its "magic slot" is a compact 300-dpi scanner, about the size of a roll of aluminum foil, that sits between your keyboard and monitor. Installation consists of connecting the scanner to a Mac serial port, plugging in its power supply, and loading the accompanying software. A superb, well-illustrated, and well-indexed manual explains the process and all of the PaperPort's many software features.

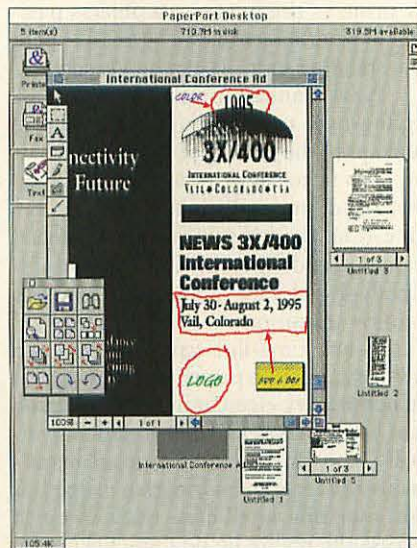
The PaperPort is engineered to be both convenient and unobtrusive. The scanner itself has no power switch; instead, it switches on whenever you insert something in the slot and accepts paper from 2 to 8½ inches wide and from 3 to 30 inches long. Ordinarily you feed pages through a lower slot and they make a 180-degree turn to emerge from an upper slot, but a slight twist of the scanner's housing redirects its paper path from curved to straight to enable you to

scan less flexible items. And the device performs impressively fast, scanning an average business letter in less than ten seconds.

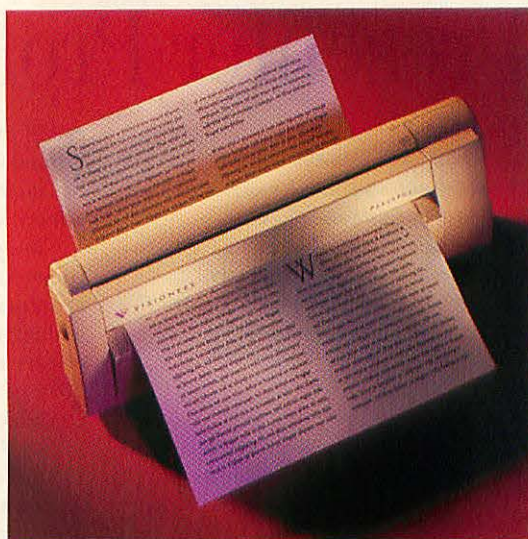
### Magic In, Magic Out

The PaperPort's software is every bit as ingenious as the scanning unit. Inserting a document brings an image window immediately onto your screen, allowing you to monitor scanning progress. When the scan finishes, the PaperPort application automatically launches, displaying the PaperPort's desktop window containing thumbnail images of all your scanned documents. The software can automatically crop and straighten images as needed, and you can select 200-dpi, 400-dpi, and photo-half-tone scan modes.

The desktop window lets you manipulate images just as you would papers on your real desk, sliding them into orderly arrangements or piling them up in stacks as you see fit. From the desktop you can save images and stacks to disk, annotate them, print or fax them, and even run them through OCR software and open the resulting text in your favorite word processor. The PaperPort's compressed image format stores an average 8½-by-11-inch page of text in about 20K, but you can also save in BMP, PCX, PICT, and TIFF formats.



**Marking and Filing** The PaperPort's document-management application lets you organize pages—scanned in via the PaperPort, imported from applications, or faxed in—as stacks. You can then annotate pages with sticky notes, graphics, lines, arrows, and text. The results can be saved, printed, or faxed elsewhere for further work.



KEVIN CANDLAND

The PaperPort has tools for annotating documents using sticky notes, text, lines, and arrows; and you can change the font, size, and color of any annotation. A Find File feature lets you search the contents of archived images for specific sticky notes and textual annotations, providing a powerful retrieval tool.

The left side of the PaperPort's desktop contains several Application Link icons, which give you drag-and-drop access to printing, faxing, E-mail, and OCR. Visioneer bundles in Calera Recognition Systems' WordScan OCR software, but you can also use Caere's OmniPage and Xerox Imaging Systems' TextBridge OCR products. WordScan has reasonable recognition rates and some advanced features, such as decolumnizing. For high-volume OCR, though, you're better off with the speedier add-on OCR packages.

The PaperPort provides fax-software links for Global Village Communication's Global Fax, Faxstf from STF Technologies, Apple Express Fax, and Delrina FaxPro. Visioneer bundles E-mail links for Lotus cc:Mail and CE Software QuickMail with the PaperPort; you can buy a \$49 upgrade for Microsoft Mail and Apple PowerTalk. The PaperPort Writer printing extension lets you print documents from applications directly to the PaperPort's desktop. This feature also enables you to print incoming faxes into the PaperPort for OCR, annotation, and filing.

### The Last Word

Remember when pundits used to promise us a paperless office? Visioneer's PaperPort actually puts on your desktop everything you need to make that dream a reality. It's an unusually well executed product, at a very reasonable price.

—MEL BECKMAN



# Day-to-Day Organizer 1.0

## Personal Information Manager

**PROS:** Modules are well integrated; excellent contact manager and outliner. **CONS:** Can't easily change recurring events; some bugs. **COMPANY:** Portfolio Software (802/434-6400). **LIST PRICE:** \$149.95.



**D**AY-TO-DAY ORGANIZER consists of an address-book manager, Day-to-Day Contacts; a scheduling program, Day-to-Day Calendar; and an outlining program, Day-to-Day Notepad. The package comes with a leather organizer in the popular six-ring format (the same size as Filofax and Day Runner pages). Organizer is single-user; you can't share your calendar or contact file with a workgroup.

Integration among the three programs is accomplished via Apple events and centers around an extension called Assist, which appears in all applications as a menu item next to the Help menu. From the Assist menu, you can launch any of the three Day-to-Day applications, and you can use Assist to find and create contacts or calendar items. Assist's hierarchical menu lets you add your most-frequently-accessed contacts and their telephone numbers. When you choose a contact and hold down the  $\mathbb{H}$  key, Day-to-Day automatically dials the telephone number. Assist can also be used to display a list of today's events or the to-do list.

Most of the bugs I found in the Day-to-Day package were associated with Assist. Editing to-do or event items from Calendar via Assist did not work correctly; when I marked a to-do item as done, Assist flashed a "Saving" dialog box, but did not change the to-do item. Accessing the to-do list again showed the item as pending. Similarly, when I changed an event's priority using Assist, the change was not saved, though changing the event's time using Assist worked fine.

Data entry methods are not consistent among the different parts of Day-to-Day. For example, when you enter data using Contacts, the program automatically formats telephone numbers with parentheses and hyphens; however, when you enter data using Assist, you must format the numbers yourself.

## Day-to-Day Calendar

Compared with competing programs such as Adobe's DateBook & Touch-

Base Pro Bundle or Now Software's Now Up-to-Date 3.0, Day-to-Day Calendar comes up short.

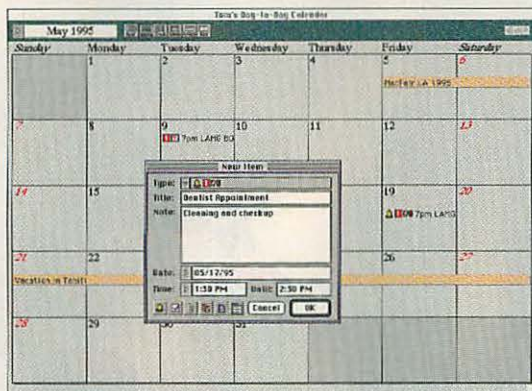
Calendar displays dates in one of six views (year, month, two-week, week, weekday, and day). As with almost all calendar programs, you can double-click on a date to create a new event or to-do item on that date, and you can drag items to a new date. You can create banners for events that span multiple days, and the program lets you use a variety of patterns and backgrounds.

Calendar's interface needs to be improved, as does the way it handles recurring events. Let's say that starting in January you have a meeting on the third Friday of every month. In March, the meeting date changes to Thursdays. You have to manually move the March

so topics on the same level are referred to as sister topics. Subtopics are daughters, and a topic at a level above a sister is known as an aunt. Each topic displays a triangle; double-clicking on a triangle shows or hides that topic's subtopics.

Notepad makes it easy to move and rearrange topics; when you drag a topic, its daughters move with it. Notepad allows you to paste graphics (PICT and bitmapped files) into topics, and you can attach sound files and voice notes to outline topics. Notepad allows you to use several different labeling schemes, including legal (1.1, 1.2, and so on), Harvard (IA, IIB, IIIC), and bullets. A particularly useful label is the check box, which makes Notepad great for to-do lists.

Notepad is integrated into the Day-to-Day system via Apple events. You can use Notepad to create detailed, time-stamped notes for a contact, or to create notes on an event or to-do item in Calendar. Any subsequent notes you create for that contact will add new headings, similarly time-stamped. Within Calendar, clicking on the Notepad button in an item's creation dialog box attaches a new Notepad document to that item. Notepad can also be launched from the Assist menu.



**Little Icons** The small icons that Day-to-Day Calendar uses sometimes obscure the description of an item; on the 19th, the meeting's description is almost completely crowded off the date by the multiple icons.

date and every subsequent date; Date-Book Pro, on the other hand, moves them for you. Calendar also requires too many extra steps to set up a to-do, and it doesn't let you set defaults for your most commonly used settings. So if, for example, you want your pending to-do's to always carry forward to the next day, sorry; you have to remember to set that option every time you make a to-do item. And the program's event icons often crowd the text description off the calendar.

## Day-to-Day Notepad

Notepad is the latest version of a familiar outlining program that has seen several incarnations from multiple software publishers. The program has been known as Acta, Acta 7, Acta Advantage, and Dyno Notepad; under any name, it is an excellent, easy-to-use outliner. Notepad uses a family metaphor for outline topics,

## Day-to-Day Contacts

Day-to-Day's contact manager has been well known as Dynodex. In fact, the Day-to-Day Contacts manual is the Dynodex 3.5 manual with a different cover.

Other than the name change, Contacts has changed little since *Macworld's* review in September 1994. The new version works with the Assist extension and with Calendar. The update is available in Portfolio's support forums on CompuServe and America Online. Contacts remains a strong single-user contact manager with excellent printing capabilities.

## The Last Word

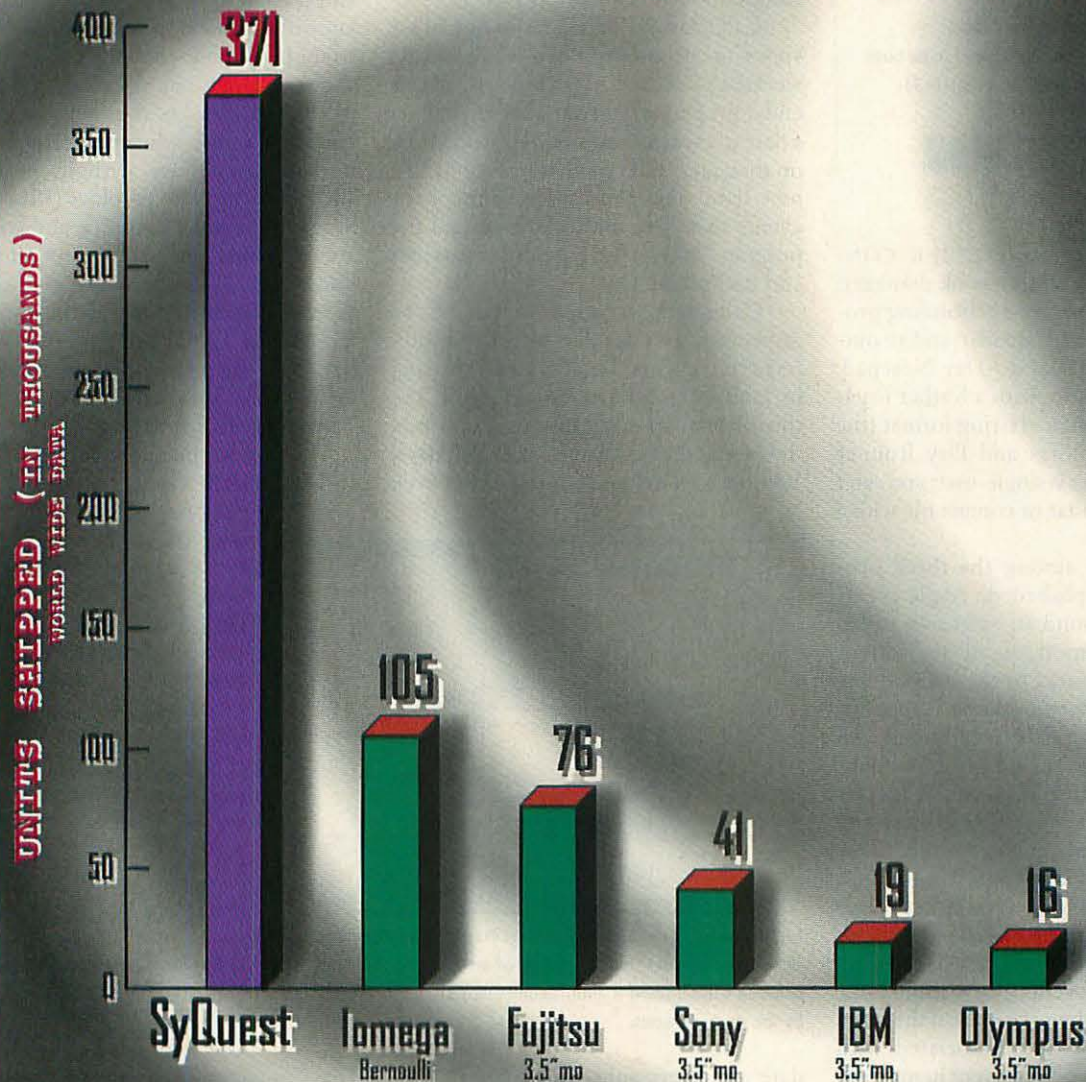
Day-to-Day Organizer is a mixed bag. Day-to-Day Contacts is a full-featured program, with enough features to satisfy even ardent PIM addicts. Day-to-Day Notepad is also an excellent organizational tool. But Calendar's interface and the way it handles recurring events need to be improved to make Organizer a competitive product.—TOM NEGRINO



# NO, THIS IS NOT AN OPTICAL ILLUSION.

## REMOVABLE CARTRIDGE DRIVES 40-500 MB

SOURCE: 1994 DISKTREND REPORT.



WHEN IT COMES TO HIGH PERFORMANCE REMOVABLE STORAGE, **SYQUEST** IS THE UNDISPUTED WORLD LEADER.



FOR MANY YEARS SYQUEST HAS BEEN THE UNDISPUTED CHOICE OF HEAVY USERS IN THE PUBLISHING BUSINESS. ITS PROVEN, SUPERIOR TECHNOLOGY DELIVERS LOW COST PER MEGABYTE, SPEEDS SIMILAR TO THAT OF FIXED HARD DRIVES, AND INDUSTRY-WIDE COMPATIBILITY WITH A SERVICE BUREAU ACCEPTANCE OF OVER 98%. IS IT ANY WONDER THAT SYQUEST IS THE WORLD STANDARD? SO GO AHEAD, BELIEVE YOUR EYES, AND DON'T GET STUCK WITH ANYTHING LESS.

SyQuest Technology, Inc., 47071 Bayside Parkway, Fremont, CA 94538.  
SyQuest and the SyQuest logo are registered trademarks of SyQuest Technology Inc.  
©1995 SyQuest Technology.



**SyQuest®**



# M.Y.O.B. 5.0

## Accounting Software

**PROS:** Easy to set up and use; reports revenues and expenses by job; permits custom forms and reports; great features at an attractive price.

**CONS:** No multiuser capabilities; no tutorial.

**COMPANY:** BestWare (201/586-2200). **LIST**

**PRICE:** \$139; \$239 with payroll.



**LOSE OUT YOUR SPREADSHEETS.** Take the CPA off retainer. M.Y.O.B. makes double-entry accounting easy enough for anyone to do. Changing accounting systems is never easy, but switching to version 5 of this well-established program is worth a transitional headache or two.

M.Y.O.B. supplies integrated accounts receivable, accounts payable, inventory, and optional payroll for small businesses. Version 5 introduces improvements in system setup, data entry, and reporting. M.Y.O.B.'s file-folder-style interface is now even more convenient. A well-written start-up booklet and a brief instructional video (a real boon for those who can't bear to page through written documentation) throw in a bit of basic accounting for good measure.

### Getting Started

Creating your chart of accounts and entering your opening balances is the most important—and unfortunately the most difficult—part of setting up an accounting system. Don't let this scare you away. M.Y.O.B. supplies predefined charts of accounts for 100 businesses from building contractors to graphic artists to veterinarians; one of these charts is likely to match your business's needs, but you can modify a chart or create one from scratch if need be. Note that M.Y.O.B. permits only four digits for your account codes—inadequate for some businesses.

M.Y.O.B.'s security system lets you control access down to the individual entry screen and report. You can permit viewing of the Payroll Summary Report but not allow access to the Payroll Activity Detail Report, for example, or you can let someone print checks but not create them. While many accountants prefer systems that require correcting entries be made, nonaccountants generally want the freedom to change entries at a later date. M.Y.O.B. is configurable to either permit or deny changes to saved transactions.

M.Y.O.B. handles day-to-day busi-

ness transactions easily, while complying fully with generally accepted accounting principles. You enter data via easy-to-use forms that are virtually identical to the customary checks, invoices, and other paper documents your business uses. Accounting jargon and double-entry screens are almost completely absent. You choose account codes from pop-up lists, and an Easy-Add feature lets you create new account codes as you enter transactions.

The program comes with four basic, customizable invoice formats. Like that ideal bookkeeper you always wanted to hire but could never find, M.Y.O.B. guards against accounting errors—checking for duplicate payments and purchase orders, and applying credits against outstanding bills. However, this vigilance slows data entry, especially when large data files are involved.

### Payroll

M.Y.O.B.'s is one of the most complete, flexible payroll programs available in the price range. Not only can you assign each employee as many different wage categories and rates as you need (you're typically limited to three rates per person), but you can also assign each wage a different job code and general ledger account. The system easily handles commissions, tips, overtime, payroll advances, and deductions. M.Y.O.B. automatically calculates all payroll tax deductions and employer payroll taxes, provides reports for quarterly-tax preparation, and generates annual W-2 statements.

### Reporting Capabilities

M.Y.O.B. provides a wide variety of management reports in addition to the standard financial statements your banker and accountant want to see. For example, using the Sales Analysis report you can analyze sales by product, by customer, or by salesperson—and you can include prior-year comparisons. The Cash Flow Projection report analyzes your receivables and payables and projects cash balances for any period you specify.

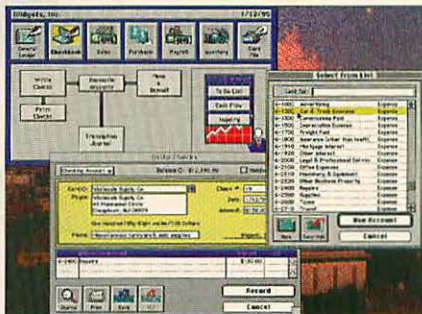
To help you manage your bottom line, the Item Price Analysis report details the current price, cost, gross margin, and markup percentage on your inventory items. On screen, the Zoom feature takes you from high-level summarized reports down to the individual transactions that make up the total, so you can understand the reasons behind the numbers. You can filter reports for time periods and data ranges and dress them up for presentation. Batch reporting allows you to issue a single command to print a set of reports that you customarily review at month-end, for example—a great time-saver.

Though M.Y.O.B.'s custom reporting is not quite as flexible as that of Intuit's QuickBooks, it's easy to use and provides all the information that most small-business owners will ever need. An important M.Y.O.B. feature is job reporting—measuring profit and loss on a project-by-project basis rather than for the organization as a whole. In version 5, this includes balance-sheet and income-statement accounts. Job codes used with balance-sheet accounts can simulate fund accounting for nonprofit organizations or provide separate reporting for branch locations within a single organization.

M.Y.O.B. 5 lacks multiuser capability. For now, networked users will have to queue up to perform their accounting tasks. Businesses cross-pollinated with Macs and PCs will be heartened to know that the package operates identically on both platforms, although their respective data files are not yet compatible.

### Service and Support

Good technical support is critical for accounting programs, and M.Y.O.B. is up to the challenge. The manual is clear but occasionally lacks detail. For example, it's skimpy on how to use the payroll system and how to process accrual-basis transactions so they don't appear on cash-basis accounting reports. And though M.Y.O.B. ships with a set of sample data, it lacks a tutorial—a major oversight.



**Streamlined Data Entry** M.Y.O.B. shows you all functions related to a command center in one window. Pop-up lists make data entry easy.

The on-screen help system is well organized and complete, and context-sensitive help is available on CD-ROM. M.Y.O.B.'s online forums receive prompt attention from technical support.

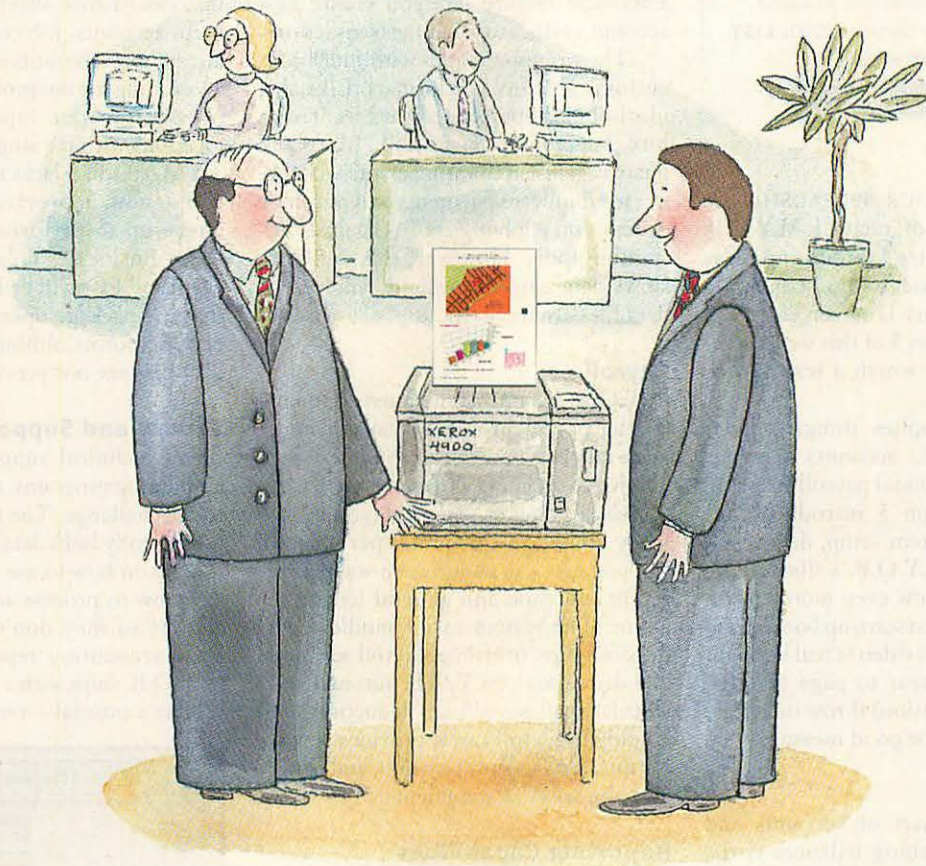
### The Last Word

M.Y.O.B. makes double-entry accounting a viable choice for the small-business owner. It simplifies the bookkeeping and reporting process and offers many management-support and automation features—and the price is right. Accounting doesn't get much easier than this.

—JAN GILLESPIE



*When winning business means big bucks,  
count on the Xerox 4900 Color Laser Printer.*



*"It's helped us land so much new business,  
we're thinking of paying it a commission."*

Sure, other printers can give you color. But do they give you a competitive advantage? The unmatched image quality of the Xerox 4900 Color Laser Printer will startle your prospects, pull in new business, and make your ideas memorable. Quad-dot technology brings your documents to life; high speeds for both color and B&W printing quickly get your proposals off the network, out of the printer, and into your clients' hands. An affordable printer that keeps you a step ahead, a cut above your competition ... and backed by our three-year Total Satisfaction Guarantee, to boot. So call us today at 1-800-54-XEROX, Ext. 101. Put more power in your sale.

Mac/PC Ready

12/3 ppm

1200 x 300 dpi

Adobe PostScript  
Level 2



THE DOCUMENT COMPANY

XEROX



Xerox®, The Document Company®, and 4900 are trademarks of XEROX CORPORATION.  
Adobe® and PostScript® are trademarks of Adobe Systems, Inc.

Circle 100 on reader service card



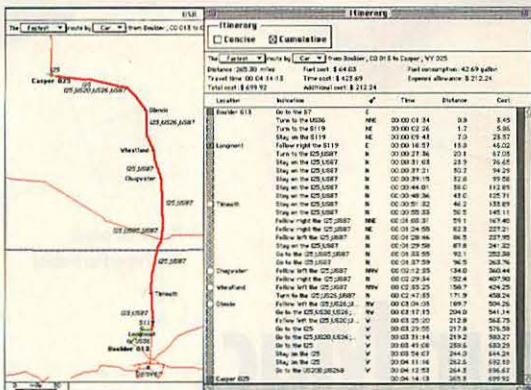
## Route 66 1.5

## Route-Planning Program

**PROS:** Fast; supports AppleScript. **CONS:** Limited route options; can't find every U.S. town; can't calculate trips involving more than three cities. **COMPANY:** Route 66 Geographic Information Systems B.V. (415/957-0666). **LIST PRICE:** \$79.95.



ROUTE 66 FINDS BOTH THE fastest and the shortest driving route between two cities. That's no big deal if the cities are San Francisco and New York (quick tip: don't drive, take a plane). But when you need to find your way from Phoenix to a town you've never visited, such as Bisbee, Arizona, Route 66 can tell you which way to go and how long it will take to get there.



**Turn Here** The map is nice, but it's the driving directions that make electronic route finders worth the money.

Using the program is easy. You tell Route 66 where your trip begins and ends by entering place names in a dialog box. After asking for either the quickest or the shortest route, you click on Find.

Route 66 searches its database of roads, trying to determine the best route for your journey. It draws a map, highlighting its recommended route, and creates written driving directions with estimated travel times and distances.

Route 66 includes an option to calculate bike routes. Unfortunately, the program couldn't find routes between cities I've ridden between, and many of the routes it did recommend were longer than necessary or traveled down roads I don't consider safe for bikes. For example, the program recommends a 222-mile route between Santa Cruz and Salinas, California—towns only 40 miles apart.

Route 66 couldn't find better bike

routes because it and similar programs list only county roads, highways, and freeways, not every street in the country. For traveling by car, Route 66 will get you to a town's limits but won't get you to a specific street address. You don't use programs like this to find your way from an airport to a nearby hotel, but to calculate routes between cities.

When I travel by car, I sometimes need to visit several cities during the same trip. Route 66 can only calculate trips including three cities. The similar Automap Road Atlas (see *Reviews*, July 1994) can handle six. Worse, Route 66's U.S. map didn't list all the towns I looked for (for example, Austin, Nevada; Cornucopia, Wisconsin; and the entire state of Alaska were missing). The company says its current U.S. database includes 13,000 towns and cities. In contrast, Automap claims its database includes 120,000 locations. Route 66's database doesn't include national parks or other recreational destinations. And while you can buy maps for much of Europe, you can't buy maps of Canada or Mexico.

The program runs native on Power Macs and is fast on a 25MHz 040 Quadra 700. Route 66 doesn't suffer from the slow screen redraw of Automap Road Atlas. But like Automap, Route 66 displays only one route at a time. You can't simultaneously view different routes on your screen.

The program's extensive, well-documented support for AppleScript means that you could build scripts to access Route 66's features through other programs such as Excel or FileMaker. But I'm not sure Route 66's database is up to the task.

The company plans to offer registered owners a free upgraded database during the first half of 1995. Future plans beyond that include optional detailed maps for specific cities and metro areas. These improvements will be welcomed.

### The Last Word

Route 66 is fast. But since I spend more time reading maps than creating them, I need more than speed. I need flexibility and detail, and Route 66 doesn't provide them. The program can guide me between big towns like Philadelphia and Pittsburgh. But it can't show me how to drive to some smaller towns like Trexler-town, Pennsylvania.

There's a lot to like about Route 66. But until its database is more complete, Automap Road Atlas, though slower, is a better buy.—JIM FEELEY

## Virex 5.5.1

## Virus-Detection Utility

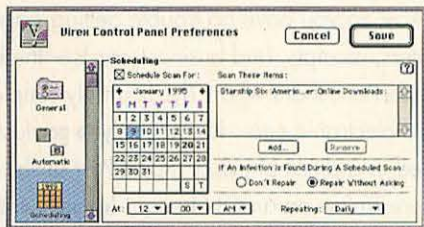
**PROS:** Extremely fast virus scans, especially on a Power Mac; easy detection-string updating; scheduled scanning feature. **CONS:** Expensive automatic update service; weak password protection. **COMPANY:** Datawatch Corporation (508/988-9700). **LIST PRICE:** \$99.95.



THE EVER-PRESENT POSSIBILITY of being infected by a computer virus was recently brought home with the news that some Macintosh users had lost the ability to type vowels on their computers. This sort of mischief is why it's important to have good, up-to-date virus-protection software, such as the latest version of Virex from Datawatch.

Virex 5.5.1 includes a control panel and an application; the latter works in native mode on a Power Mac or in 680X0 mode on your regular Mac. The installer lets you scan all of your available hard drives before installing the program, so you can quickly discover whether a virus is already present.

The Virex control panel gives you options as to what to scan and when. In default mode, it scans files as they are opened (when virus infection is apt to occur) and floppy disks after they are inserted in the drive. Additional options let you scan removable cartridges when they mount, schedule scans, and config-

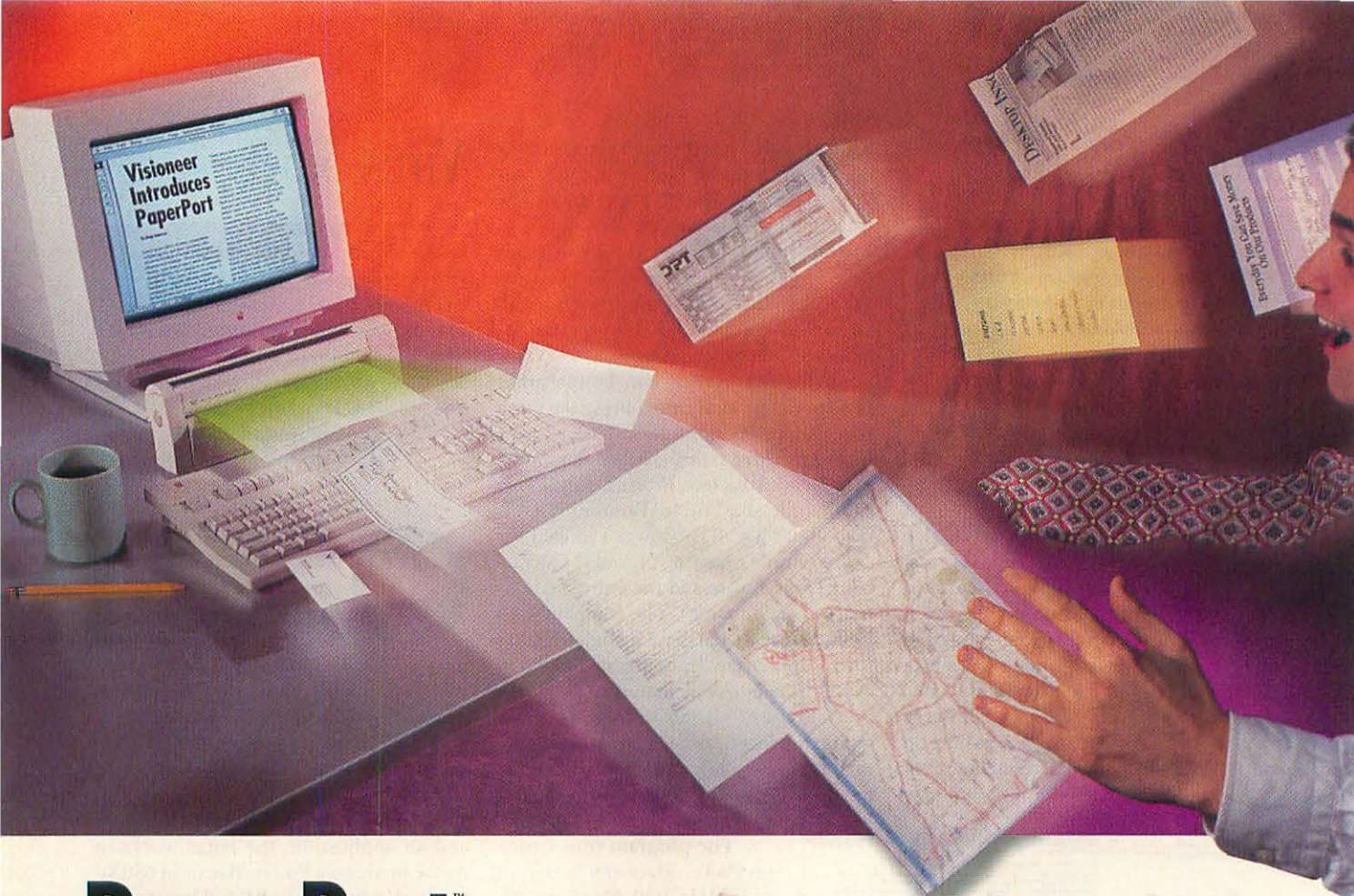


**Automated Virus Protection** You can schedule Virex to check your Mac for viruses on a regular basis.

ure the alert messages Virex puts up if a virus is found. Virex can offer to repair an infected file, delete it, or copy it to another drive for a later repair attempt.

The new version of Virex lets you scan compressed files and simplifies the technique of adding new virus-detection strings to the program. Updating Virex is now a piece of cake. Datawatch uploads update files on major online services. You *continues*





# PaperPort.™ The fastest way to get paper into your Mac.

If it's on paper,  
it's PaperPort-able!

Okay, so you have no trouble getting paper out of your Mac. But what do you do with the articles, letters, receipts, and business cards—the important papers—that cross your desk every day? You use PaperPort, that's what! The first truly simple, super-small input device that converts your paper documents into electronic ones. **Always ready to go.** Just plug PaperPort into your Mac's printer or modem port and then feed in a piece of paper. PaperPort grabs the paper, scans it and launches the software automatically—there isn't even an ON button! **Instantly useful.** At six seconds per page, PaperPort begins to display your documents on the screen even before you're through entering them!

Fitting comfortably  
between your keyboard  
and monitor, PaperPort  
becomes an integral part  
of your desktop.

Now you've got permanent electronic copies that you can retrieve at any time, using PaperPort's easy-to-use search tools.

**Streamline your work.** With PaperPort's direct links to word processors, OCR software (included!), printers and fax modems, you can file, edit, annotate, print and send your documents directly to others. Want to find out more? Call us at 800-787-7007, ext. 200.

**PaperPort. It's the in thing for your Mac.**



Once your document's in,  
one click will print it.  
another will fax it. And a  
third will OCR scan it.  
What could be easier?



VISIONEER

Circle 18 on reader service card



double-click on the update file, the Virex application launches, and the detection string is automatically updated (no importing and moving of files is necessary). For \$75 per year, you can subscribe to Datawatch's automatic update service and receive new disks with updated virus strings and maintenance updates to the program. This seems costly for software that sells for that amount at most mail-order houses; if you already subscribe to one of the major online services, you'll probably want to skip the update service.

Datawatch offers a special version of the program for network use, Virex Administrator, for \$200. I didn't test this version of the program.

With SpeedScan, the Virex program creates a reference file the first time you do a scan; it takes a few minutes to run for each drive. On subsequent checks, Virex uses the SpeedScan reference file to boost performance tremendously. On my Power Mac 8100/80, Virex zipped through three hard drives, with a total of over 4GB of storage space, in less than two minutes! Scanning the 320MB drive on my PowerBook 540c took 16 seconds.

In the past, virus-detection software has been notorious for slowing down your Mac. Every time you launched a program, you had to wait extra seconds for code resources to be examined to check for possible infections. But application launch times were only slightly slower with Virex running.

The built-in help is probably more than enough to get you up to speed with Virex; the brief, well-written manual should take you the rest of the way. When problems occur, Datawatch offers free technical support via a toll call. But you probably won't need much technical support. During my tests, Virex was as transparent in operation as virus-detection software can be and worked flawlessly and reliably. The only bug I've heard about affects users of the TrashBack extension of Symantec's MacTools 3.X. When Virex is running, the invisible folder TrashBack creates for invisible files becomes visible, but TrashBack is otherwise unaffected.

Password protection is offered, including the option to lock the Virex control panel in the System Folder. But restarting with extensions off is sufficient to disable the locking feature.

### The Last Word

Even before native Power Mac software existed, Virex was fast. In Power Macintosh form, the program positively blazes when scanning your drives. Virex is a comprehensive, reliable virus-detection program that will definitely meet the needs of most users.—GENE STEINBERG

## CanOpener 3.0

### Finder Utility

**PROS:** Opens QuickTime, DOS, sound, and picture files; compact. **CONS:** Quirky file-search feature. **COMPANY:** Abbott Systems (914/747-4171). **LIST PRICE:** \$125.



**E**VER GET A DOCUMENT FROM A friend or online service, only to find that you don't have the application necessary to open it? Sure, you can get software that will play movies or open damaged files or open DOS files or ASCII files, but wouldn't it be nice to have all that in one product?

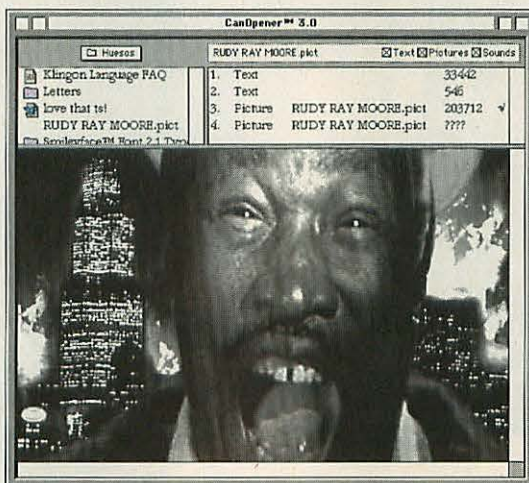
CanOpener, a 180K utility from Abbott Systems, opens practically everything: DOS files; sound files (SND, FSSD, Instrument formats); pictures in

requires that QuickTime be installed in your system in order to play movies.

Once a file is in the View Area, it's easy to use the Clipboard to cut and paste the file into a document created in your favorite application. I was able to respond to a coworker's plea for help—he needed Adobe's PageMaker to view a file—in literally seconds by opening the PageMaker file with CanOpener, copying and pasting it into Microsoft Word, and sending it to his desk over office E-mail.

I always found CanOpener to be quick with this open-copy-and-paste routine: a PC file that took MacLink Plus/Translators four minutes to convert to Word took CanOpener one. The drawback is that the CanOpener-converted file was text-only, while the MacLink Plus document retained its formatting. The CanOpener version also had a lot of junk text at the end of the file that the MacLink file did not. Tweaking the text-cleanup section in File Preferences helps eliminate random-character noise from a file.

Abbott also promotes CanOpener as a text-and-file-search utility, but I encountered speed problems with this function. Searching text for a phrase in a particular folder was no problem. When I expanded the search to my entire hard drive, I waited and waited. After six minutes of watching the little can go round and round, I canceled the operation. It turns out CanOpener was searching not just my hard drive but all mountable file servers—yikes! I tried it again, with extensions off and no servers mounted; this time CanOpener brought up a dialog box to connect to the server and wouldn't let me cancel out. It was either search



**What Format? Who Cares?** Whatever you've got, CanOpener can open it. You can copy to the Clipboard and paste text and graphics into your presentation, business plan, or report.

MacPaint, MacDraw II, PICT, EPS, ICON, and TIFF formats; damaged files; QuickTime movies; and ASCII-based text formats.

Opening CanOpener brings up a simple window divided into three sections: File List, Contents Area, and View Area. The File List shows mounted volumes; a pull-down menu lets you select individual volumes, folders, and files for searching or viewing. The Contents Area lists the text, pictures, or sounds associated with a selected file. Double-click on an item in the Contents Area to display it—or play it—in the View Area. In the case of QuickTime movies, a player with start, stop, volume, and frame-by-frame buttons appears; you then view the movie using CanOpener's player. CanOpener

the server or forget the whole thing.

My other complaints are few. The page-up and page-down keys work in the File List window, but not in the View Area window. Some of the key commands are not what I'd expect of a Mac program—⌘-P for View Preferences instead of Print, for instance. And ⌘-period (.) doesn't always stop the current operation.

### The Last Word

There are specialized utilities for viewing graphics, movies, or DOS files, and for opening files when the application is unavailable. CanOpener opens them all, and if it doesn't work quite perfectly, it does work fast. For an all-in-one product with a street price of around \$60, it can't be beat.—SUZANNE COURTEAU

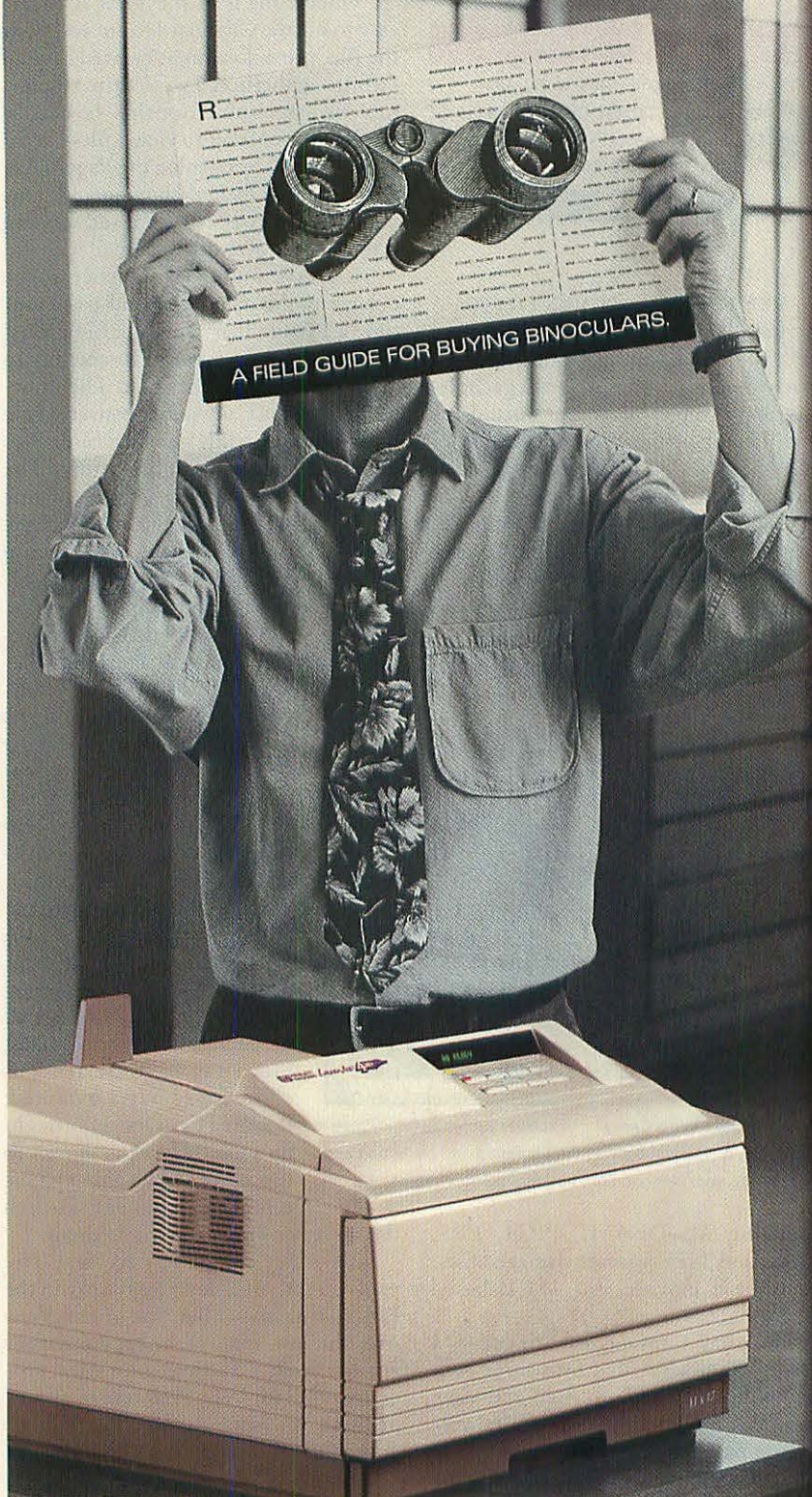


# Size it up.

Tabloid-size output for under \$3,000\* with the HP LaserJet 4MV.

Now you can see your designs in all their glory. The LaserJet 4MV printer not only delivers oversize output, it gives you a full-bleed at 11" x 17" after trimming. And, if you're going to have it big, you might as well have it fast. So this LaserJet handles a variety of paper sizes with a 16-ppm engine. Tabloid-size prints at 9 ppm. In addition to superior 600 x 600-dpi print quality, your complex graphics benefit from HP's Resolution Enhancement technology, 12 MB of standard memory and more than 120 levels of gray in Adobe™ PostScript™ language or enhanced HP PCL 5. Of course the LaserJet 4MV is totally Mac compatible. LocalTalk and Ethernet mean it's network ready – for any environment. But the best part is that it'll cost you less than \$3,000. Call for more information and print samples.<sup>†</sup> And get the big picture.

HP LaserJet Printers



\*Average U.S. retail price. Actual price may vary. Adobe and PostScript are trademarks of Adobe Systems Incorporated which may be registered in certain jurisdictions. ©1995 Hewlett-Packard Company PE12518  
†Call 1-800-LASERJET, Ext. 9177. In Canada, call 1-800-387-3867, Dept. 9177.



# Netscape Navigator

## World Wide Web Browser

**PROS:** Provides intuitive all-in-one Internet interface; optimized for 14.4-Kbps modems; available free to nonprofits; evaluation copies available online. **CONS:** Doesn't fully incorporate E-mail. **COMPANY:** Netscape Communications Corporation (415/528-2555). **LIST PRICE:** \$39.



NETSCAPE COMMUNICATIONS wants you to forget all the highway metaphors you've ever heard about the Internet. Instead, think about an encyclopedia—one with unlimited, graphically rich pages, connections to E-mail and files, and access to Internet newsgroups and online shopping.

Netscape Navigator is a World Wide Web-based client application for accessing Internet servers that speak the HyperText Markup Language. HTML, when seen through a Web client or browser, transforms the Internet's uninviting Unix look into an appealing and intuitive page format replete with sound, photo, and movie files.

But the real point of the Web is the way hypertext links can connect its pages. Web links are really pointers to Internet addresses or Universal Resource Locators (URLs); clicking on a link whisks you across the Internet to the server where that document resides. Web browsers let you jump on the Internet from a home page, which, loaded with hyperlinks to Web sites, acts like an interactive table of contents to the Internet.

### Surfing with Navigator

Launching Navigator takes you to the Netscape Communications home page, where you can find a hyperlinked list of the latest and coolest Web sites, a searchable Internet directory, and updates from Netscape. When you find sites you like, you mark their pages in a bookmark list so you can return to them easily.

Navigator's well-designed built-in news reader lets you access Usenet message groups in page format. The HTML format lets readers jump to hot-linked newsgroups, provides buttons for easy posting and reading, and has simple subscribe/unsubscribe commands, all making it easy to navigate newsgroup threads.

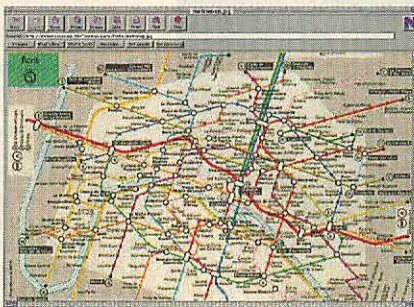
Early Web browsers suffered from poor compatibility with File Transfer Protocol servers; Navigator rarely balks at retrieving FTP files. Still, because In-

ternet document standards change constantly, Navigator can't read every available file format. To get around this, Navigator supports helper applications that are widely available on the Net in the form of small (around 50K) players for letting you view video or hear sound files.

Navigator requires a direct Internet connection or a TCP/IP account from an Internet service provider. Accessing Web pages via a dial-up account is still fairly slow; Navigator is optimized for 14.4-Kbps modems and loads graphics incrementally while it displays text. Files don't load any faster, but allowing you to read ahead makes it feel that way.

Navigator's biggest omission is support for incoming E-mail. You can configure Navigator to let you respond to E-mailbox hot links within HTML pages, but you can't use it to receive, organize, or filter mail. If Navigator is to become the Internet interface, it has to incorporate E-mail more thoroughly.

Navigator is distributed free online for nonprofit, evaluation, or educational use, so why should you buy a copy? To get the excellent printed manual is one reason. It captures the voice of the Internet—irreverent, helpful, and a little geeky. Access to tech support is another good reason to pony up, and eventually security for commercial transactions con-



**Armchair Traveler** I used Navigator to download this map of the Paris Metro (<http://meteora.ucsd.edu:80/~norman/paris/>).

ducted online will be another. Right now only a handful of people use the Internet for buying and selling anything, but Netscape signed deals with credit card companies earlier this year and is almost certain to limit most security features to the commercial version of Navigator.

### The Last Word

Navigator is well ahead of other Web browsers in terms of features, stability, and ease of use. If Netscape improves its E-mail features and puts security standards more firmly in place, Navigator will be even harder to unseat as the best vehicle for surfing the Internet.

—MATTHEW HAWN

# QA-1500

## LCD Panel

**PROS:** Excellent color quality; well-designed remote; lets you make computerless presentations. **CONS:** PCMCIA functions hard to use; expensive. **COMPANY:** Sharp Electronics Corporation (201/529-8731). **LIST PRICE:** \$5795.



SOME LCD MANUFACTURERS INCLUDE writing utensils or elaborate input devices, and others boast the ability to make presentations sans computer. The latter ability is the most distinguishing feature of Sharp's QA-1500.

The Sharp panel is an active matrix, video-capable LCD panel that offers excellent display quality and flicker-free video. At setup, the QA-1500 needed little adjusting; it displayed colors flawlessly. Flesh tones were accurate, and text looked crisp at a variety of sizes. When the unit displayed a solid color, however, the top of the image looked washed out, while the bottom looked more accurate. Macworld's overhead projector is generally dimmest in the upper-left and upper-right corners, so the QA-1500's occasionally excessive brightness can't be attributed to the projector. Video from a laser disc player appeared smooth and flicker-free when I played it on the LCD.

The included remote control has an illuminated display with easy-to-understand buttons and is one of the best I've used. The display lights up when you press a button on the remote.

### Computerless Presentations

The QA-1500 has a PCMCIA slot that takes Type III storage cards. With the card in the panel, users can copy presentations created on the Mac and save them onto the PCMCIA (or PC) card. A saved presentation can then be displayed from the PC card, without using a Mac. The PCMCIA is an innovative plus—if you can get it to work. Sharp's manual does not explain exactly how to get your presentation from the Mac to the PC card. A technical-support staffer acknowledged the omission and explained that you first open the presentation on the Mac, then use the remote control to bring up Sharp's internal software on the QA-1500; the software lets you copy the presentation to the PC card one slide at a time.

Creating the presentation with Sharp's DOS-like commands is a two-step process: after saving the slides to the PC

*continues*



# COREL STOCK PHOTO LIBRARY

For Macintosh and Windows

20,000 of the best high-resolution photographs chosen from the millions submitted to Corel!

Royalty free for use in everything from advertisements to presentations!

**200**  
CD-ROMs  
20,000 Photographs

**\$789.99\***  
#67802



plus  
"The World's Best Digital Photographs"  
coffee-table book and CD-ROM  
(Also sold separately)

#### ALSO INCLUDES:

- **Corel Visual Database** - Search for specific images from the 20,000 photographs available using descriptive keywords.
- **Full Color Reference Manual** - Displays all 20,000 photographs.
- **OTHER COMPREHENSIVE UTILITIES:**
  - Corel Photo CD Lab
  - Corel Mosaic Visual File Manager
  - Corel Artview Screen Saver
  - Corel CD Audio
  - Windows Wallpaper & Flipper

- **HIGH RESOLUTION** - 5 resolutions from 128 X 192 up to 2048 X 3072. Each image is approximately 18 megs (uncompressed).
- **COLOR FUNCTIONALITY** - Grayscale, 16 colors, 256 colors or RGB (24 bit).
- **EXPORT FILTERS** - Macintosh: TIFF or PICT. Windows: TIF, BMP, EPS, PCX or GIF.
- **COMPATIBILITY** - Can be read by any CD-ROM player (XA support not needed). All photographs are in the Kodak Photo CD format.

#### ALSO AVAILABLE FROM COREL:



- COREL GALLERY FOR MACINTOSH**
- Over 10,000 professionally-designed clipart images on CD-ROM.
  - Available in Macintosh or Windows versions.

**\$34.99\***  
#66461

Also

**\$144.99\***  
#66462



Also

#### Individual Titles:

- 100 stunning photographic images on CD-ROM.
- Hundreds of individual titles available.
- The world's largest collection of royalty free stock photography images.

#### Volume Sets:

Selected from the Corel Professional Photos collection on CD-ROM!

**25**  
CD-ROMs  
2,500 Photos



**\$17.99\***  
#66463



**Call Today!**

**1-800-222-2808**



**COREL CONFERENCE & SHOWCASE**  
June 1-2, 1995  
Ottawa, Canada  
Call to reserve your seat!  
1-800-896-2058

**ATTENTION! PROFESSIONAL PHOTOGRAPHERS!**  
If you are a professional photographer interested in having your photographs published in the world's leading photo CD-ROM collection, please call Corel Corporation at:  
**1-613-728-0826 ext. 85080**



Circle 78 on reader service card

\*US\$ plus applicable taxes.

AD-0000



card's directory, you assemble the presentation (the card stores a maximum of five presentations). You have to save and add each slide individually. You also have to name the slides using the remote control. You move through the alphabet using plus and minus buttons, similar to the way you enter your initials on an arcade-style video game—a tedious and time-consuming process. You can only control the PC card from the remote; you can't use the computer. But the remote is fairly large, and if, like me, you have small hands and need to set up a computerless presentation, the remote can become heavy and cumbersome.

Once your slides are assembled on the PC card, you disconnect your Macintosh and make your presentation. My panel-based presentation worked well, although moving from slide to slide took about a



KEVIN CANDLAND

second longer per slide than it did using my presentation software.

If you don't have a Mac available and you don't anticipate making last-minute changes to your presentation, the PC card option might appeal. I prefer the flexibility of using a computer.

### The Last Word

The QA-1500 costs slightly more than other panels; the PCMCIA storage card costs an additional \$500. Sharp also sells a \$200 backlight that lets the LCD panel work as a stand-alone monitor. As a stand-alone display, the QA-1500 looks great from some angles and unreadable from others; as with PowerBook screens, you may need to adjust the angle from which you view the LCD screen.

Overall, the QA-1500 is a good product, but its value is partially eclipsed by the excellence of other—less expensive—products, such as those from Boxlight, nView, and Panelight Display Systems (see "Portable Presenters," January 1995, and "Panelight ZX," *Reviews*, March 1995). The QA-1500, however, has the PCMCIA card option and the Sharp name. But if you want a high-quality LCD panel without the frills, check out the less expensive products.

—JOANNA PEARLSTEIN

## Electronic Marker 1.0.2

### Presentation and Annotation Tool

**PROS:** Good variety of markup tools; numerous keyboard shortcuts. **CONS:** Can't toggle between markup mode and editing mode without clearing marks; no Undo command; can't remove unwanted markups without clearing entire markup layer.

**COMPANY:** Consumer Technology Northwest (503/643-1662). **LIST PRICE:** \$34.95.



IMAGINE COVERING YOUR COMPUTER screen with a sheet of clear acetate and then drawing on the sheet with a felt-tip pen. That, in essence, is what you do with Electronic Marker. With this simple system extension, you can use your mouse (or another input device, such as a trackball or stylus) to highlight text and images on your Mac's screen, draw arrows and symbols to isolate specific points, mark proposed deletions, and so on; your markups are recorded on an invisible layer superimposed on your documents. You can mark up and annotate a screen to your heart's content while the original data remains untouched. Being able to draw on top of your screen data can be useful for training and presentation purposes, but the Electronic Marker software has a few weaknesses that make it a less practical tool than you might expect.

The program provides three types of markup tools, which you can customize through the Electronic Marker setup application. Marker tools let you draw solid lines. Highlight tools work like transparent highlighter pens. Image tools are small icons (check marks, arrows, happy faces, and the like) that you can paste on screen. The program's simple, one-window interface lets you fine-tune each tool. You can, for example, choose from eight pen thicknesses and several colors. You can constrain the Marker and Highlight pens to draw only horizontal and vertical lines. You can pick from 34 different images for the Image tools, but, unfortunately, you can't create your own images or edit existing ones.

To use any of the markup tools, you have to switch into markup mode by clicking in the lower left corner of the screen, or via a keyboard combination that you define. This essentially freezes your current screen image and lets you begin using the markup tools

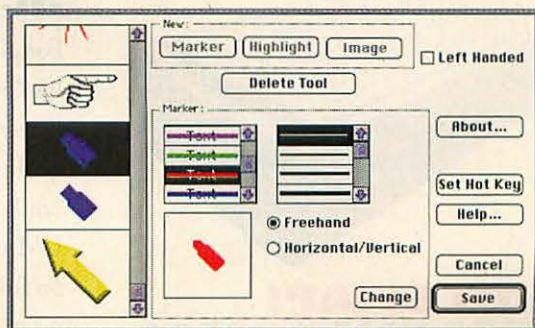
you have set up using the Electronic Marker application. The program includes plenty of convenient keyboard shortcuts for switching pen colors and types as you work.

Here's the problem: you can't toggle between markup mode and normal mode without obliterating the markup layer. If you exit markup mode—to open another document, for example—all your annotations disappear forever. This means you can mark up only a single screen at a time; even scrolling to the next page of a document erases your marks. The only way to capture your markups permanently is to do a standard screen capture using the Mac's built-in picture-taking command,  $\text{⌘-shift-3}$ . (This doesn't seem to work on every Macintosh, or with every keyboard, however; I was unable to make a screen capture of marked-up pages on a Quadra 630.) So, while Electronic Marker can be a practical enhancement to live demonstrations and on-screen presentations, it's not necessarily the best tool for annotating documents that need further editing.

The markup program has other irritating limitations. There's no Undo command. Worse, there's no way to erase individual symbols or markups once you've applied them. So, if you accidentally add a stray mark to a document—even a single errant mouse-click is all it takes—you either have to live with the unwanted mark or start over.

### The Last Word

The concept behind Electronic Marker is wonderful, but the software is limited and too ungainly to be really useful for many tasks. It can genuinely enhance on-screen presentations and training sessions with its colorful markup notes and symbols, but the program needs better controls for modifying and preserving markup layers to become an appealing tool for annotation.—JOSEPH SCHORR



**On Your Mark** Electronic Marker lets you preset up to eight different markers, highlighters, and images, all of which you can instantly access through keyboard shortcuts.



# POWERLOOK out-powers the competition!



## **HOT SWAP!**

PowerLook's One-Year Manufacturer's Warranty  
Includes "HOT SWAP" Exchange Program.  
Call 800-859-2728 for Details. (U.S. Residents Only)

## **Scan With a Winner!**

For all your professional graphics and prepress needs, get the UMAX PowerLook. It's "probably the fastest flatbed scanner ever made," says HOW magazine. PowerLook's award-winning combination of blazing speed and superior image quality knocks out the competition every time. PowerLook is powerful, yet "fast (and) easy to use," according to MacUser magazine. And PowerLook comes with UMAX's own MagicScan, intuitive software that gives you scanning domination. So for consistent, unbeatable quality, team up with PowerLook and put yourself in the winner's circle.

Circle 196 on reader service card

# **UMAX®**



# Atlases

## World Globe Software

### 3D Atlas 1.1

**PROS:** Beautiful, spinnable, zoomable globe; click-a-country, see-a-slide-show feature; 50 environmental movies. **CONS:** Globe doesn't spin freely in all directions; small window; a few typos and mispronunciations. **COMPANY:** EA World (415/571-7171). **LIST PRICE:** \$79.95.



### Small Blue Planet 2.0

**PROS:** Gorgeous satellite photography; new click-a-country, hear-the-language feature. **CONS:** Slow; distracting blotchiness when a new region is viewed; no manual; cryptic interface. **COMPANY:** Now What? Software (415/885-1689). **LIST PRICE:** \$59.95.



CARTOGRAPHERS HAVE STRUGGLED to depict the globe on a flat surface. If you simply flatten the sphere, the map is distorted. Small Blue Planet and 3D Atlas use multimedia to depict the globe on the flat surface of your monitor.

### Small Blue Planet

As in its original version, at Small Blue Planet 2.0's heart are six dazzling photo-mosaics created from satellite shots of the earth's surface (see *Reviews*, July 1994). Version 2.0's new feature is sound: you can click on any of 70 countries to hear, pronounced in the native tongue, "Good morning," "I love you," or another phrase. It is written out in the appropriate alphabet. It's fantastic.

Unfortunately, many of version 1.2.1's shortcomings remain. The political map is still barren, showing only country boundaries and capitals—and a topographically disastrous information window covers up a third of the screen.



**Caught in the Act** After a zoom-in, the upper-left of the screen is in normal high-res mode, while the lower-right half has yet to be redrawn.

Also, when you scroll (in any of the modes), you see a blotchy patchwork of crude squares. If you're patient, the program repaints the quiltlike area until the whole screen shows high resolution. But you can't resize the full-screen window.

Small Blue Planet is further diminished by its tool palette, whose mysterious little icons have no labels. Neither the company's phone rep nor I could figure out, for example, exactly what the four dots on the magnifying-glass handle do—and there's no manual to explain.

### 3D Atlas

3D Atlas shows a real globe. Drag the cursor in any direction, and the globe spins. Keep zooming in, and the ground appears to rush toward you. Click anywhere to identify the country beneath your cursor or type the first few letters of its name. Double-click to hear the country's name



**3-D Delights** When zoomed all the way out, 3D Atlas shows the whole globe.

pronounced, read information about it, and see a slide show of exquisite 16-bit color photos taken there.

Well-produced QuickTime movies tell of acid rain, global warming, and the like. There are computer-generated fly-by movies of mountain ranges; time-lapse exhibits that show the ozone hole; a statistics mode that shows various countries' population, income, and other data; and a trivia game that tests your knowledge of currencies, flags, sights, and capitals.

There are frustrations. You can spin the globe infinitely on two axes, but you can only make it spin from pole to pole. The display window is only 4½ inches square. And if the QuickTime narrator says "nuke-ular" one more time . . .

### The Last Word

Every day, TV and newspapers show us glimpses of the earth: a map here, a photo there. Small Blue Planet offers superior satellite photos, but its interface and speed problems trip it up. 3D Atlas, on the other hand, is rich, well designed, and fast; and it gives you a new way of thinking about this big blue planet.

—DAVID POGUE

# MacTools Pro 4.0

## Disk Utility

**PROS:** RAMboot eliminates restarting from floppies; useful built-in help. **CONS:** Requires large amount of RAM; expensive technical support. **COMPANY:** Symantec Corporation (503/690-8090). **LIST PRICE:** \$149.95.



MACTOOLS PRO'S LATEST upgrade now runs on Power Macs and offers users better help features.

The current version, however, drops System 6 support and will not run on the Mac Plus, SE, Classic, or PowerBook 100.

The redesigned MacTools Clinic program combines DiskFix, Anti-Virus, Optimizer, Undelete, and FileFix. AutoCheck, which scans your disk for directory problems, runs in the background and can collect disk-scan results from any Mac running AutoCheck on the network. Some MacTools Pro programs are unchanged. For example, FastCopy copies floppy disks and creates disk image files; DiskLight's flashing screen icons alert you to disk and peripherals activity; and the Backup program, despite its confusing interface, works with removable media and digital audiotapes.

MacTools Pro's most exciting new feature is RAMboot. RAMboot automatically creates a RAM disk with a System file and the MacTools Clinic application, and automatically restarts your Mac from the RAM disk. When MacTools Clinic completes the repair or optimization, RAMboot automatically restarts the Mac from the usual start-up disk. For models that don't support a RAM disk—the Mac II, IIfx, IIfx, IIfx, IIfx, IIfx, Classic II, SE/30, LC, and LC II—MacTools Clinic lets you create bootable Emergency and Optimizer floppy disks.

The new QuickAssist is a help system that leads you through the disk-repair process. First, you check off the problems you're having from a list, and DiskFix runs the appropriate repair routines. SmartTips is a series of help screens detailing how to fix common problems.

DiskFix can now repair more disk problems without rebooting from a separate disk, and it can fix disk-directory problems that the previous version could not. DiskFix is faster than in the previous version, especially on Power Macs. The Optimizer program is also faster. But even

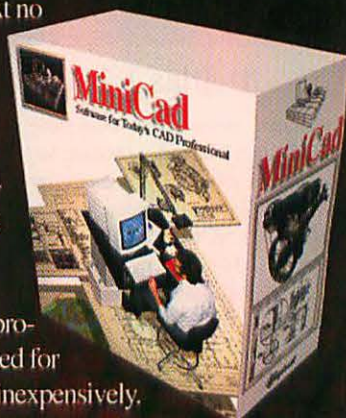
*continues*



# Should Graphsoft's MiniCad 5 be your CAD Program? Take the Quiz.



- I want a full-featured, proven market leader which can handle any job: 2D, 3D, cost estimation and client presentations.
- I want a program that runs on both the 68K-based Macintosh and the Power Macintosh. At no extra charge!
- I want a CAD program that is tailored to my needs, with specialized tools for architecture, mechanical engineering and design.
- I want an expandable CAD program which can be customized for specific solutions easily and inexpensively.
- I don't want to spend a lot for training or experience an enormous learning curve.
- I want an established company with constant R&D funding, so that my investment stays safe.



MiniCad 5 offers all of the above and more. The award-winning software has been hailed as the "features champion" by Macworld Magazine. Graphsoft is dedicated to aggressive investment in CAD R&D. Graphsoft customers stay more productive than their competitors because Graphsoft supports both the latest technology and evolving user needs. MiniCad has long been the price/performance leader in Macintosh CAD. Don't be steered away from MiniCad by VARS who want you to buy high-priced CAD products that are hard to learn and only do a few things well. The VARS won't tell you that MiniCad 5 ships with a multi-media training CD, or that you receive 18 months of free technical support with Graphsoft products or upgrades. In short, MiniCad keeps more of your money in your pocket. Buy MiniCad 5 and save!

MiniCad 5 also includes: speed increases up to 100% even on 68K-based Macintoshes, a Claris CAD conversion program (including a \$495 competitive upgrade price, a Claris CAD translator and a helpful conversion guide), translators for importing and exporting to the other major CAD products, an upcoming Windows version, a powerful QuickTime key frame animation tool for creating and exporting stunning walkthrough and flyover presentations and a no-hassles 45-day money-back guarantee through participating dealers. Contact Graphsoft today for detailed literature. To order immediately, call MacWarehouse, MacConnection, or your local dealer.

## Mechanical, Architectural, & Advanced Design Modules Included.



Also from.... Graphsoft Inc.



### Azimuth

### Blueprint

The ultimate map creation tool, including ten cartographic projections and more! Used by US News & World Report, 4 mice!

Full-featured 2D drafting. Experience ease of use, high precision and an affordable price, 4 mice, Macworld Editor's Choice!

10270 Old Columbia Road, Columbia, Maryland 21046

Ph: 800-413-0935 or 410-290-5114 Fax: 410-290-8050 In Canada Call Paxar At: 604-474-8975

Power Macintosh and QuickTime are trademarks of Apple Computer Inc. MiniCad, Blueprint, and Azimuth are trademarks of Graphsoft, Inc. Claris CAD is a trademark of Claris.



with MacTools' improvements, I found that Symantec's Norton Utilities for Macintosh 3.1 could mount and repair some crashed disks that DiskFix could not, reinforcing my belief that you should own both MacTools Pro and Norton Utilities.

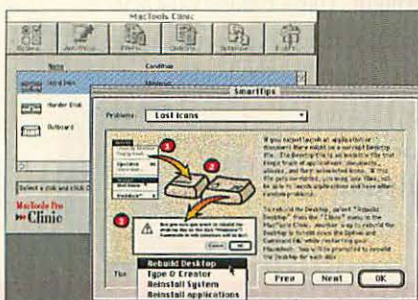
AutoCheck and Anti-Virus constantly scan the disk looking for problems. Both work well but require a ridiculous amount of RAM. AutoCheck needs 512K of RAM, and Anti-Virus and TrashBack together need approximately 270K. Norton Utilities' FileSaver requires only about 80K of RAM.

Technical support for MacTools Pro is expensive. Toll-free support calls are \$25 per call, and 900-number tech-support calls are \$2 a minute. Unlimited tech support is available for a flat rate of \$30 for 30 days. There is no free phone support for MacTools Pro. Many users buy a disk-utility program after they've had problems and usually need at least one support call. Symantec offers free tech support via E-mail to its BBS, and on CompuServe and America Online. Symantec's fax information line offers answers to the most-often-asked questions.

MacTools Pro worked well on my Macs, but after reports of an incompatibility between FastCopy and the AV Macs, Symantec released an updater program. The company is also working on an incompatibility problem between TrashBack, System 7.5, and QuickTime 2.0 that causes AutoCheck to report an incorrect amount of free disk space.

### The Last Word

MacTools Pro does a good job of finding and fixing disk problems, and RAMboot and QuickAssist make disk repair easy. Unfortunately, MacTools Pro suffers from both expensive tech support and a large RAM requirement. If you might need technical support, you should consider buying Norton Utilities, which comes with 90 days of free, albeit not toll-free, support. If you've got the RAM, and tech support isn't important to you, I recommend MacTools Pro.—TOM NEGRINO



**Helpful Hints** MacTools Clinic's SmartTips lets you select a problem, then it gives you repair suggestions.

## ClientTrac 2.0

### Personal Information Manager

**PROS:** Easy to learn and use. **CONS:** Limited feature set; slow; large file sizes.

**COMPANY:** Whiskey Hill Software (415/851-8702). **COMPANY'S ESTIMATED**

**PRICE:** \$99.



**C**LIENTRAC IS A CONTACT MANAGER and scheduling program that provides new users with an easy entrée into contact management. But the program has enough limitations and outright flaws that you should look elsewhere for your PIM needs.

The action in ClientTrac happens mainly in the data entry screen (see "Homage to Rolodex"). You add contact data to the area that looks like a Rolodex card on the left of the screen, then as you work with the contact, you enter notes, phone logs, and other information on the right. The advantage of this layout is that even the most inexperienced user can be up and entering data into ClientTrac within a minute of starting the program.

ClientTrac includes the usual PIM features, such as a to-do list, phone dialing, a calendar, reminder alarms, and the ability to categorize clients and to sort or select clients based on category. There's also a basic word processor that allows you to write one-page letters for mail merge.

The program has a sales-automation feature that lets you create simple sales plans that you then assign to clients. You enter a list of steps in the sales process (phone calls, letters, and so on) that you want to accomplish with a prospect; then the program prompts you to make the calls and send the letters for all clients who have a plan action due that day. But ClientTrac's sales automation isn't flexible enough for real-world salespeople. There's no built-in conditional branching, so if you make a sale early in the process, you have to manually tell the program to skip all the remaining steps that are unnecessary. Another problem is that if you modify a sales plan after you have assigned it to a client, ClientTrac doesn't update the client's plan, significantly limiting your flexibility. It's not unusual to need to change your sales plans

in response to the changing conditions of your market.

ClientTrac is based on HyperCard; it is a complex stack integrated with the HyperCard player. As such, it carries with it the disadvantages of HyperCard. First, it's no speed demon, especially when searching or sorting cards. Sorting only 600 clients for mail merge took ClientTrac about 40 seconds on my Centris 650. Second, the program and data are enclosed in the same file, so to make a data backup you always have to back up the program; because the base program takes up 2.5MB, you can't easily back up your data to floppy disk. And the inefficient way HyperCard stores data means ClientTrac files can easily grow to more than 3MB. My 600-record data file (a 60K text file) took up 300K when added to the ClientTrac file.

Other annoyances with ClientTrac include limited, canned reports; a main



**Homage to Rolodex** Anyone who's ever seen a Rolodex will have no problems with data entry in ClientTrac. Just fill in the card on the left, and away you go.

data entry screen that you cannot resize; and windows that don't remember their size and position between launches of the program. There's also an odd Names list separated into alphabetical tabs; double-clicking on a tab expands all the names beginning with that letter. You can have only one of those tabs expanded at a time, though, so you can't view all of your clients in a single list.

### The Last Word

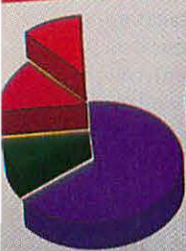
ClientTrac 2.0 lacks the horsepower that users have a right to expect from a PIM. It compares poorly with competing programs that have close to the same street price, such as Now Software's Now Up-to-Date and Now Contact 3.0 (reviewed in *Macworld*, April 1995) or Adobe's DateBook & TouchBase Pro Bundle 4.0. Although the program works reasonably well, ClientTrac's sole advantage—extreme ease of use—isn't enough to recommend it.—TOM NEGRINO



## Sales-O-Gram

From: All Sales Representatives  
 To: Kenton O'Keefe  
 Sales Manager  
 Subject: Persuasive power of color presentation

- Color increases ad readers
- Color ad increases sales 42%
- Color documents provide
- Color improves attention

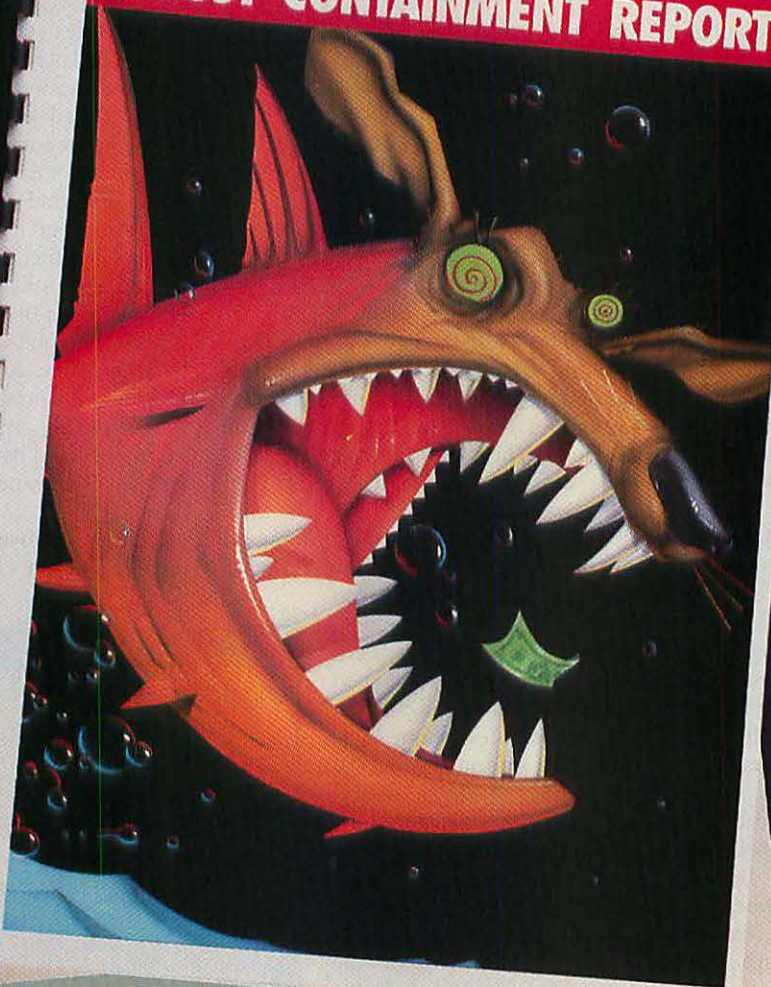


proves  
 on per  
 back

Attention  
 Agreement  
 Comprehension  
 Attention  
 Perception

[1] CARR Report No. 110.3A "Does Colorship?", Calhoun Publishing Co.  
 [2] "Update on split run tests on sales #20", internal report of color versus black and white per Association of America

## COST CONTAINMENT REPORT



## Business Color Printers

### COLOR PPM

Phaser 340

Color Laser

### COST PER PAGE

Phaser 340

Color Laser

### PRINTER PRICE

Phaser 340

Color Laser

Source: PC Magazine  
 November 22, 1994 Annual  
 Printer Review

**Tektronix**

# Color is color, unless it's brilliantly practical.

## It's the business printer you've been waiting for.

Professional color so reliable, inexpensive and easy to use, it's a practical office tool. Speed? It's the world's fastest color printer at 4 color pages per minute. Cost? Full text pages on plain paper at 3¢ each. Color for 11¢ on office papers. Simplicity? If you can load a stapler, you've mastered this machine. Reliability? Add

750 sheets and let it run overnight. That's robust. Cost? At \$4,995, nothing in its performance range even comes close. Best of all, it's from Tektronix, a Fortune 500 leader, making world-class color printers for 13 years.

**The Phaser 340 Color Printer.**  
**So practical, it's brilliant.**



**Tektronix**

For free output sample or nearest dealer, call 800-835-6100, Ext. 1039.



# Graffiti 1.01

## Newton Text-Entry Software

**PROS:** Makes extended text entry possible for the penmanship challenged. **CONS:** You must learn a new alphabet. **COMPANY:** Palm Computing (415/949-9560). **LIST PRICE:** \$79.



I HAVE ALWAYS BEEN ENVIOUS OF PEOPLE with good handwriting, especially since I started using a MessagePad. But now, it doesn't matter. My MessagePad doesn't have to understand my handwriting—I just have to understand Graffiti.

Graffiti works like a pen-based typewriter: it pares down each character to a minimalist symbol, usually executable in one stroke. You tap to set an insertion point where you want your text to appear (the same way you use the Newton on-screen keyboard) and then start scratching away in a writing box roughly an inch square. If you write a symbol that Graffiti recognizes, it puts the corresponding character wherever you've placed the text-insertion point. The alphanumeric symbols closely resemble the letters or numbers that they represent. Graffiti uses one symbol for both upper-

and lowercase letters; you have to write a special symbol, called a shift stroke, to move from one character set to another. To activate numbers, punctuation, and special characters, you must use different shift strokes.

Graffiti's character set is remarkably complete. If there's a complicated text string that you use frequently, you can even assign it to a ShortCut. The online help is clear and easily accessible.

The 1-inch-square writing box sounds cramped, but it isn't; the worst problem is that your writing ends up outside the box. You can have the window surrounding the writing box slightly larger than the box itself, or you can choose Scratchpad, a larger window with room for jotting down notes. When not in use, both windows shrink to a small, movable button. Even in tiny-window mode, Graffiti was unobtrusive, although I did have to shift the window around to get to all the fields in a Newton Contact record. The Graffiti application takes up only 80K of RAM, and it was compatible with every text-entry New-



MARK JOHANN

ton application I tried.

Practice is the key when using Graffiti. Expect several weeks of use before you're comfortable writing on the MessagePad instead of notepaper. Within a week of applied Graffitiology, I was up to 20 words per minute at 90 to 95 percent accuracy. There are caveats: I print in all block capital letters. Those blessed with beautiful, flowing, script hand-

writing may need more practice to retrain their hand (ah, sweet revenge). Also, I'm right-handed, so I can't vouch for how well Graffiti works for left-handers, though there is a Lefty Layout for the Scratchpad. Finally, if you're scribbling notes on a pad of paper, you can abbreviate and generally cut corners with penmanship, but if you try either when using Graffiti, you're as likely to get *Qixedd farf tateknia* as that juicy quote from our interviewee.

**The Last Word** Graffiti isn't the magic elixir that will cure your MessagePad of all its woes, but it makes serious text entry possible, and that alone is worth the price. —CAMERON CROTTY

# TypeTamer 1.0.4

## Font-Management Utility

**PROS:** Good set of tools for managing fonts and checking font information. **CONS:** Can't customize display sizes by font category. **COMPANY:** Impossible Software (714/470-4800). **LIST PRICE:** \$59.95.



WITH 183 FONTS IN MY FONT menu, it's a long trip to ZebraWood. Therefore, I was happy to install TypeTamer, which—among its many other capabilities—groups fonts into families, allowing you to choose styles and weights from a submenu. Not only does TypeTamer shorten the Font menu, it offers several tricks for working more efficiently with fonts. For example, the program's Speed-Fonts feature lets you type the first few letters of a font's name to zip to that font in the menu. And the TopFonts feature places the names of the fonts used in a document at the top of the Font menu, allowing you to quickly select a font.

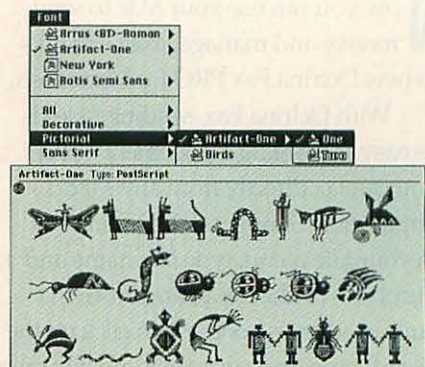
TypeTamer places an icon beside each font in the menu, showing whether it's a PostScript (including Multiple Master),

TrueType, or bitmap font. (This information is handy if you've forgotten to install the printer-font component of a PostScript font; the bitmap icon will appear next to the font's name, indicating that it won't print correctly.) Place the pointer on an icon to display a font's character set; upper- and lowercase letters are the default, but you can customize the sample text. TypeTamer shows sample text in three point sizes, which you can also change.

Can't remember which keystroke combination you press for the copyright symbol? TypeTamer can display a font's special characters, allowing you to simply point to a character to insert it in a document, rather than typing random shift-option combinations or opening Key Caps to find the proper combination.

Finally, TypeTamer lets you create your own font categories for the Font menu. If you're a designer, for example, you might want to place all your sans serif fonts together. Or you could place all pictorial or symbol fonts in one category, or perhaps divide fonts up by vendor. (A font can appear in more than one category.) Whatever categories you choose, you can add or delete fonts at any time.

I have few complaints about TypeTamer. I wish you could set different character-set-display sizes for each category, rather than one set of sizes for all; you might



**A Font of Information** TypeTamer not only helps you manage your fonts by grouping them into custom categories in the menu, but also provides useful functions such as listing the fonts used in a document and displaying sample characters.

want to display pictorial fonts at a larger size than text fonts, for example. The TypeTamer control panel should have an on/off switch to make it easier to enable and disable (you can, however, temporarily disable TypeTamer by pressing the shift key before accessing an application's Font menu). On the other hand, you probably won't have much call to disable TypeTamer.

**The Last Word** TypeTamer is a useful application that offers a variety of ways to make life easier for those of us with large—and ever-growing—collections of fonts. —ERFERT FENTON



# Introducing Delrina Fax PRO™ for Macintosh. You'll wonder how you ever faxed without it.



**N**ow you can use your Mac to send, receive and manage faxes – thanks to new Delrina Fax PRO for Macintosh.

With Delrina Fax, sending faxes is as easy as printing a document – and you can fax directly from any Mac application. Simply select Delrina Fax in your File menu, type in a name and number – or choose a name from the built-in address book – then click on the “Send” icon and your fax is quickly on its way.

**Don't try this with a fax machine.**

Delrina Fax also delivers stunning 16-shade gray-scale sharpness and clarity on-screen, as well as to any fax machine or printer. And, since it works in the background, you can send and receive faxes without leaving the

application you're working in and designate faxes to print automatically on receipt.

Delrina Fax automatically keeps a detailed log of all the faxes you send and receive, and it has built-in Optical Character Recognition (OCR) that lets you easily convert your faxes with text into documents that are ready to be



*Delrina Fax gives you detailed information about your faxes. Viewing, printing, resending and deleting faxes are a mouse-click away.*

edited. There's even a custom scheduling feature that allows you to schedule long distance faxes when phone rates are lower.

**Support that can't be beat.**

Delrina Fax supports all fax modems for the Mac, as well as all Powerbook Express™ modems and AV GeoPort Telecom™ adapters. And installation is virtually automatic.

With over 4 million fax products sold worldwide, and industry-acclaimed tech support, Delrina is the leader in the fax software market. To put this experience to work for you, call the number below and order Delrina Fax PRO for Macintosh today. Once you do, you'll wonder how you ever faxed without it.

**DELTRINA**  
1-800-631-8118



# DragStrip 1.0

## Desktop Utility

**PROS:** Provides single-click access to files and folders; compatible with Control Strip modules. **CONS:** No way to label items; no keyboard shortcut to bring DragStrip to foreground. **COMPANY:** Natural Intelligence (617/876-4876). **LIST PRICE:** \$39.95.



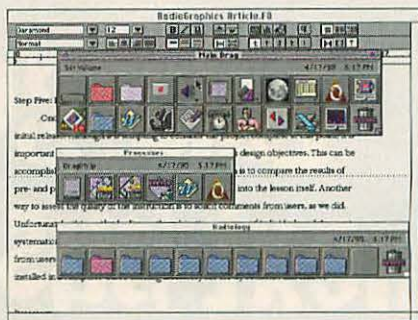
**D**O YOU WASTE TIME RUMMAGING through folders looking for files? Although you can get at frequently used items by placing them (or their aliases) directly on the desktop, a screen cluttered with icons isn't much of an improvement. DragStrip offers one solution. (For some reason, I wasn't able to get DragStrip to work on a Power Mac 6100, even though it is supposed to be PowerPC-compatible.)

DragStrip lets you create strips of blank tiles onto which you can drag items. Clicking on an item has the same effect as double-clicking on it in the Finder. If you click on a folder and hold down the mouse button, a hierarchical pop-up menu of the folder's contents appears; clicking and holding on an application's icon displays a list of

documents recently opened with DragStrip. You delete items by dragging them to the trash-can icon at the end of the strip.

Because DragStrip is an application, it may be less prone to conflicts than are system extensions or control panels. (DragStrip does require several Apple System 7 extensions to achieve full functionality, however.) This means that DragStrip must always be running in order to work. Moving the cursor to any corner of your screen brings DragStrip to the foreground; a keyboard shortcut for this would be a welcome addition. You can have more than one strip open at once, and you can drag or cut and paste items between strips. To make room for new items, you simply drag to make the strip larger. To conserve space on small monitors, you can hide a strip's title bar and status area from view, you can use small instead of standard-size icons, and you can display strips vertically.

In addition to working with files and folders, DragStrip lets you populate strips with modules similar to the ones that come with Apple's PowerBook Control Strip control panel. DragStrip ships with six of them, including one that lets you change your monitor's bit depth and another that displays a perpetual calendar when you click on it. (The DragStrip manual includes guidelines for writing new modules.) DragStrip also lets you display a strip that shows



**Main Drag** The status area below the strip's title bar shows the time and date, as well as the name of each item as the cursor passes over it.

all of your active applications. Clicking and holding on an application shows a list of its open documents for you to select from.

**The Last Word** The major drawback to DragStrip's approach is that the more crowded your strips become, the harder it gets to pick out a particular item. This is especially noticeable with folders, which look identical unless you go through the added trouble of assigning them custom icons. DragStrip compounds the difficulty by displaying only icons; future versions should let you display item names as well. With a few minor changes, DragStrip would be a worthwhile alternative to the Finder, especially for users with little Mac experience.—FRANKLIN N. TESSLER

# QuePoint

## Input Device

**PROS:** Does not require extra driver; can click on the pad itself. **CONS:** Small, awkwardly placed mouse buttons. **COMPANY:** MicroQue (801/263-1883). **LIST PRICE:** \$149.



**S**OME DAYS MY HAND ACHES FROM sliding around my desktop on a little hunk of plastic, and on those days I want to kill my mouse. I just want to grab it by its little ADB tail and feed it to my cat (who eats anything). The problem is that I haven't yet learned all the great Mac keyboard shortcuts, I am too uncoordinated to use a stylus and tablet, and I hate trackballs. Until recently, this meant that if I wanted an alternative to my mouse, I was out of luck.

Enter the QuePoint, a small input device that uses the GlidePoint technology that Apple licensed from Cirque Corporation for the Trackpad on the PowerBook 500 series (for an explanation of the GlidePoint technology, see "PowerBooks: The Next Generation," *Macworld*, July 1994).

Using the QuePoint is as simple as sliding your finger over the little gray pad,

which senses your movements via a grid of capacitance sensors below the smooth surface and translates them to your Mac. The QuePoint requires no extra driver, plugs into any ADB port, and has a pass-through for connecting other ADB devices.

The QuePoint senses motion in quite an intelligent way. Sliding your finger slowly across the pad moves the cursor a short distance across the screen; sliding quickly moves it further. With a little practice, I was able to move the cursor in word processing documents quite nimbly between words and letters with a short rolling motion of my fingertip. One of the QuePoint's nicer features is that it correctly interprets clicking on the surface of the pad itself, something Apple inexplicably left out of its Trackpad. Click-dragging requires a button-pad combination that I mastered easily. The QuePoint has two buttons located just below the pad. The left button is a regular mouse button, and the right is a click-lock button. Adjusting the tracking and double-click speed is as simple as opening the Mouse control panel that comes with your Mac.

Because your hand doesn't move around, the QuePoint requires very little desktop space and less movement of your arm. A 3-foot cord lets you place the pad wherever seems most comfortable. For PowerBook users with Trackpad envy and an ADB port, the QuePoint makes a nice



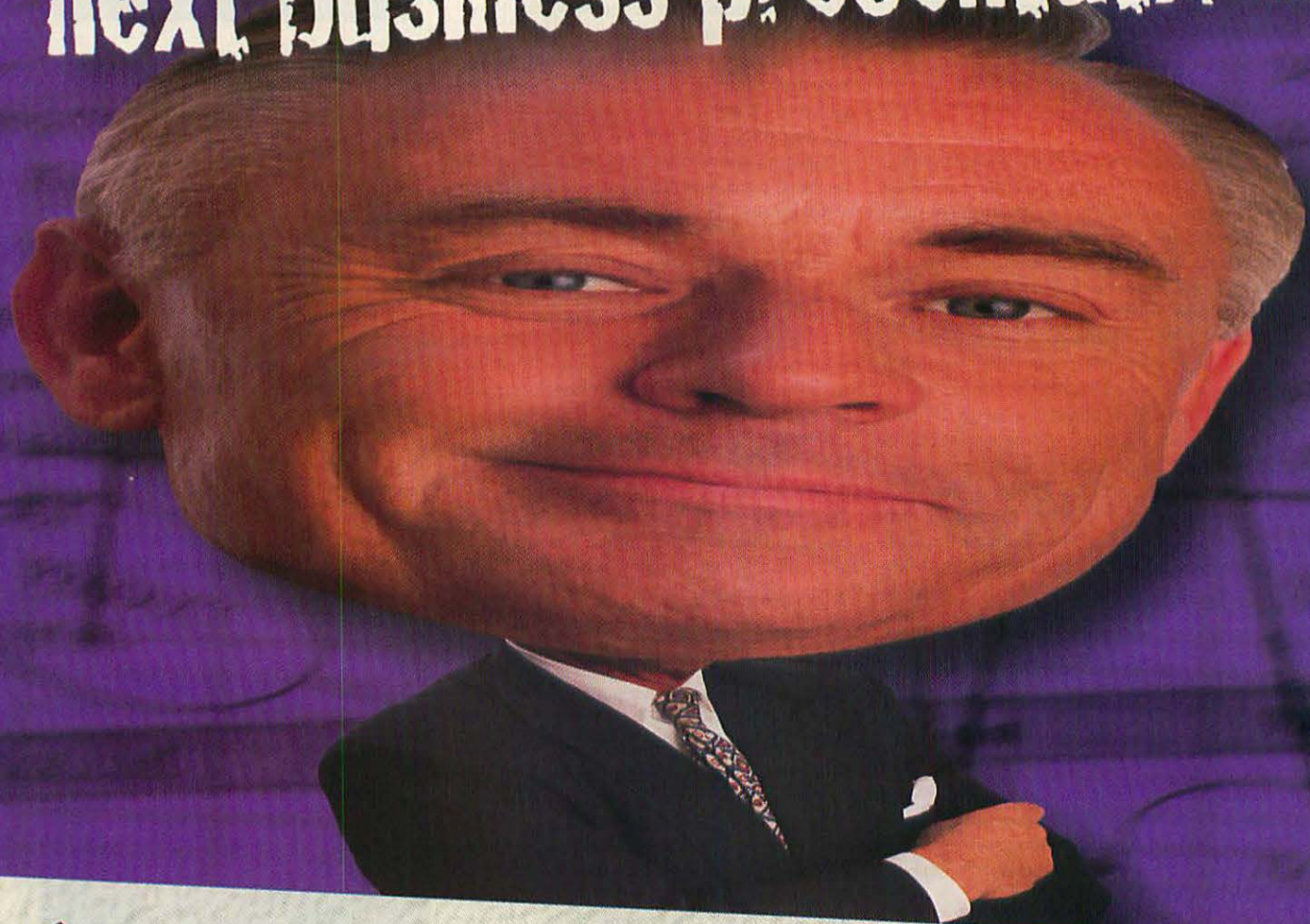
alternative input device. At 2 inches by 3 inches (and 4 ounces) it easily fits next to your PowerBook on an airline tray.

Ironically, that compactness is also my biggest complaint. It isn't the size of the pad area that bothers me but rather the problems I have using the two buttons comfortably. The ability to double-click on the pad is great, but to use the click-lock feature of the right-hand button requires lifting my hand and an awkward reach with my thumb. I also wish there were a button above the pad, not just the ones below.

**The Last Word** The QuePoint is, literally, a point-and-click device. It will appeal to people who would rather finger-paint than use a brush. I'm not sure I'm ready to give up my mouse, despite my love/hate relationship with it, but the QuePoint is a welcome alternative.—MATTHEW HAWN



# Enlarge more than your next business presentation.



## < New Z SERIES Panels

The all-new nVIEW Z SERIES LCD computer/video projection panels are the thinnest, most portable available—as light as 4.3 pounds. All the latest technology.

You are looking at a person who is definitely on a roll—who is in that rare zone beyond the nth degree of satisfaction, about to burst with inner self-confident pride. And rightly so. He has just given his presentation of a lifetime.

The entire meeting was dazzled with the enlarged computer data and graphics projected on the large screen directly from the presenter's

own laptop. And awed with his linked control of multiple sources that let him instantly switch from bright giant video, to laser disc, and back again to high-contrast computer output. As he added an impromptu comment to the screen, you could hear an excitement of success murmur through the room.



## < New Improved Luminator

The nVIEW Luminator® LCD projector is now lighter, with 30% improved high-contrast color—and now shows-off images on a 15 foot diagonal screen. A real workhorse.

Impressive. Very impressive. Our proud presenter had the newest, brightest, easiest, fastest, lightest, thinnest LCD computer projection panel—from nVIEW. And that's all that needs to be said.

Being in that rare zone of bursting with confidence doesn't have to be rare for you anymore.

Call your local authorized nVIEW dealer for a no-obligation demonstration immediately.

For the nVIEW dealer nearest you, call

**1-800-736-8439**

**nVIEW®**  
Computer Projection



# NEC AudioTower

## Multimedia Speaker System

**PROS:** Attractive design; extra inputs for external sound source and headphones. **CONS:** Mediocre sound quality; inconvenient controls. **COMPANY:** NEC Technologies (800/632-4636). **COMPANY'S ESTIMATED PRICE:** \$99.



AS THE OLD CLICHÉ GOES, YOU can't tell a book by its cover. If the NEC AudioTower Speaker System sounded as good as it looks, it would be a stellar product. Unfortunately, the sound of these speakers doesn't match up to that of comparable systems.

The speakers aren't towers compared with traditional stereo speakers, but at a bit over 11 inches high, they're much taller than other desktop speakers. They're no wider, however. On the top of the right speaker are controls for turning the system on, and for adjusting volume, bass, treble, and the balance between the speakers. While having all the controls here looks nice, it's less convenient than having the dials on the front, because you can't tell

which dial controls which function unless you get up from your seat and look at the top of the speaker. (All of the electronics are in the right-speaker module; the left module has just a speaker and jacks.) A hefty power cord looks more robust than other speakers' flimsy cords.

Unlike other manufacturers, NEC realizes that not all Macs have built-in CD-ROM players. NEC supplies an extra input for an external CD drive (or a regular CD player or cassette deck), and a headphone jack. Setup is simply a matter of plugging in a few cables and turning on the system.

Loudspeaker manufacturers generally use two or more speakers in each box for the best-quality sound. NEC pumps all of the sound into single 3½-inch speakers, a method that doesn't use the large cabinet space of these speakers to their best advantage. The built-in amplifier's power is rated at 5 watts per channel, with 10 percent distortion. That's about 20 times as much distortion as you get with your average stereo amplifier. According to the manufacturer, the speaker cabinets are tailored for superior bass response, but the advertised frequency response doesn't go below 150Hz.

I listened to an assortment of audio CDs, multimedia games, and QuickTime movies, and found the sound nothing to write home about. The basic tonal character was muffled, and voices had a nasal qual-



ROBERT PERRY

ity. The stereo soundstage on well-recorded CDs seemed foreshortened, confined to a narrow area just a few inches wide. High-frequency content was missing, and the speakers lacked sufficient bass response, even when I turned the bass-tone control to its maximum setting. When played loudly, the right speaker tended to buzz slightly.

**The Last Word** If the NEC AudioTower were judged by appearance and features (such as the extra input jacks), it would be a first-class product. But loudspeakers must sound good, too, and NEC's speaker system suffers seriously when you compare its sound with that of other products in its price range.—GENE STEINBERG

# Living Album 2.5

## Multimedia Album

**PROS:** Good compression; free stand-alone viewer. **CONS:** Interface is poorly designed and counterintuitive. **COMPANY:** QuickMedia Labs (408/749-9200). **LIST PRICE:** \$129.95.



LIVING ALBUM IS MEANT TO BE A moderately priced application for collecting multimedia elements. With more and more personal computer users making the move to digital images and sounds, it seems like a great idea. Imagine a wedding album crossed with a multimedia HyperCard stack: 24-bit color photos of the wedding party, the sound of the band singing "Louie, Louie," and QuickTime movies of the bride doing the lambada. But Living Album just doesn't live up to its promise.

To use Living Album, you need to collect digitized photos and/or digital video on your Mac. Once these elements are on your hard drive you can import them into Living Album individually or in batches using the application's import features.

Living Album lets you include up to 36 elements on a single page, and an album can

have 1000 pages. The elements appear as thumbnails surrounding the main viewing window. You navigate by selecting a thumbnail, which then brings the image to the central window. Living Album also offers two slide-show-style options. To annotate your album, you can attach additional movies, sound files, and text files to elements. Photos are not resizable or editable within Living Album, though you can copy them into other applications and work on them there.

The albums you create can then be viewed using the application itself or by using a freely distributable stand-alone viewer (527K as an installer file). For each page of an album, Living Album creates a special QuickTime source file that includes



**Pretend It's Moving** Movies appear in a movable window, not in the album's viewing area.

all the elements on that page. This keeps file sizes small without affecting image quality. The file for the single-page album I created (26 photos in 24-bit color, 4 small QuickTime attachments, and no sound attachments) totaled about 700K, so the viewer and a small album will fit on a floppy disk.

But Living Album isn't as simple or intuitive as it needs to be. From the main viewing window, it is difficult to tell which entries have video, text, or sound attachments. The interface requires you to interact with too many unclear buttons and non-standard menu items, even in the slide-show modes. When I sent an album and viewer to a friend, she spent more time with the online help than with the album itself.

This crowded interface is more than a usability problem; it's an aesthetic one. The main window is just too busy, and the thumbnails surrounding the viewing area only add to the confusion, especially if you're trying to locate attachments. The interface is distracting, and it limits your ability to control the way you present your digital memorabilia.

**The Last Word** All of this is a shame because I wanted to like Living Album. There is a real need for a simple and inexpensive application for collecting digital images and sounds. But Living Album is too unpolished and awkward for me to recommend.—MATTHEW HAWN



# Macintosh Training

## Pure. Simple. Effective. Inexpensive. Award Winning!

**T**he *Macworld Magazine* WORLD CLASS AWARD for training sits in my office. The readers of *Macworld* voted for **MacAcademy** by a margin of 2 to 1 over audio training systems, disk based systems, and all other training companies and products. Simply, we won because our training works! It's affordable, it's flexible, it covers an incredible amount of programs, it's simple to use and it's guaranteed! We won the award because over 250,000 satisfied customers are proof that MacAcademy training programs will work for you. Below please find a current listing of the MacAcademy Video Training Library. Each video is approximately two hours in length and costs only \$49. Each video carries a complete money-back guarantee if not totally satisfied and can be upgraded when software is upgraded for only \$14.95.

*Randy Smith*

4th Dimension ..... 6 Videos  
Canvas..... 5 Videos  
ClarisWorks ..... 6 Videos  
Design & Layout .... 1 Video  
Desktop/PrePress .... 2 Videos  
Director ..... 4 Videos  
Excel ..... 5 Videos  
FileMaker Pro ..... 4 Videos  
Mac Fonts ..... 1 Video  
FreeHand ..... 4 Videos  
HyperCard ..... 3 Videos  
Illustrator ..... 4 Videos  
Infini-D ..... 2 Videos  
Integrate Programs. 1 Video  
Lotus 1-2-3 ..... 3 Videos  
Macintosh 7.X ..... 4 Videos

MacDraw Pro ..... 2 Videos  
Mac P & L ..... 3 Videos  
MacProject Pro .. 4 Videos  
MacWrite Pro ..... 3 Videos  
MS Works ..... 4 Videos  
Networking ..... 1 Video  
Now Contact/  
Now Up-To-Date 1 Video  
PageMaker ..... 6 Videos  
Peachtree Acctg.3 Videos  
Persuasion..... 2 Videos  
Photoshop ..... 6 Videos  
PowerBooks ..... 2 Videos  
PowerPoint ..... 2 Videos  
Premiere..... 3 Videos  
QuarkXPress ..... 3 Videos

Quicken, Personal .... 2 Videos  
Quicken, Business .... 2 Videos  
QuickTime ..... 1 Video  
SuperPaint ..... 3 Videos  
Troubleshooting ..... 3 Videos  
Word ..... 4 Videos  
WordPerfect ..... 4 Videos

**\$49** each

Live Training Workshops Available  
in 32 major cities throughout the  
United States.  
Please call for complete schedule  
and/or on-site corporate training.

Video Training Available in English, Spanish, Japanese, German, & French

Video Training Also Available For Many Windows Programs

Please add \$3 per order along with \$1 per video for shipping and handling.

**TOLL FREE ORDER LINE: 800-527-1914**

**ORDER FAX LINE: 904-677-6717**

Checks, PO's, Credit Cards Accepted 48 Hour Delivery

100 E. Granada Blvd., Dept. MW0595, Ormond Beach, FL 32176 "Where the world learns the Macintosh"

**MacAcademy**<sup>®</sup>

Circle 106 on reader service card



# Storybook Weaver Deluxe 1.0

## Educational Software

**PROS:** Well designed; fun. **CONS:** Minimal drawing tools. **COMPANY:** MECC (612/569-1500). **LIST PRICE:** \$69.95.



**S**TORYBOOK WEAVER DELUXE IS AN entertaining, creative educational tool for children ages 6 to 12. This CD-ROM-based picture-book-design program lets kids assemble elaborate illustrations, using backgrounds and clip art, and write stories to accompany the illustrations. It's a fun, flexible package that nourishes creativity.

Kids create their stories using a tool bar. The tool bar's buttons provide access to the story ingredients, plus tools to edit the images. For example, clicking on the Scenery button brings up a window that contains all the backgrounds; you scroll through this window to select one. Backgrounds range from realistic outdoor scenes to castles and outer space. An object window contains images to place over the backgrounds, including adults, kids, real and fictional animals, vehicles, and objects.

While you can't edit scenery, you can

edit images. You can easily enlarge, shrink, flip, and layer objects from the tool bar. You can also change skin tones and the color of objects and clothing.

You edit images using the pencil and eraser tools in the image-editing area of Storybook Weaver. But the product lacks the more-flexible paint tools, such as the ability to adjust the pencil's weight and pattern, that many graphics packages offer. Computer-savvy kids may be used to those functions in other applications, so their omission here is a shame.

You can also associate sounds (such as a dog barking or a phone ringing) and music with a story. The sounds are represented by



**Story Time** I created this scene by selecting two backgrounds and then adding people and vehicles.

icons, though, and the choices are sometimes confusing. (A car for baroque music? It must have made sense to someone.)

After you create your story, select some text and the Speak option from the Goodies menu, and Storybook Weaver reads the text aloud. You can choose one of four different voices as your reading partner.

The program allows you to change menu items and dialog boxes to Spanish via a Preferences option. The Windows version reads highlighted text aloud in Spanish; according to MECC, the Macintosh version speaks Spanish properly only if Apple's PlainTalk is installed.

Finding help with Storybook Weaver is easy. It comes with a built-in help system and a clearly written, well-illustrated manual. The program includes a thesaurus and spelling checker, but it doesn't offer other story-writing helpers.

Storybook Weaver's main limitation is its delivery method: CD-ROMs are slow, and kids may find the program's speed frustrating (in my story, it took about five seconds to move from one page to the next).

**The Last Word** Storybook Weaver isn't much more than a word processor with clip art and sounds. But it encourages kids to develop their writing skills and creativity, and that makes it a worthwhile educational product. If I were a parent, I'd buy it for my offspring. —JOANNA PEARLSTEIN

# Thinking Mouse Macintosh ADB

## Input Device

**PROS:** Multiple programmable shortcuts; manual includes instructions on work-space ergonomics. **CONS:** Remembering button actions can be difficult. **COMPANY:** Kensington Microware (415/572-2700). **LIST PRICE:** \$139.95.



**A**T FIRST GLANCE, THE 70-PAGE user guide that comes with Kensington's new Thinking Mouse might seem like overkill for a pointing device—after all, many software applications ship with skimpier documentation. But the Thinking Mouse is more than just another mouse, and the hour or two it takes to master its many features is time well spent.

Like Apple's ADB mouse, the Thinking Mouse sports a smoothly rounded contour that fits both right- and left-handed users. (A rubberized coating on the sides prevents your fingertips from losing their grip, so you don't have to grasp the mouse too tightly.) Although the Thinking Mouse has a slightly higher profile than Apple's, I found it just as comfortable to hold for extended periods.

In place of a conventional button, the Thinking Mouse has four buttons arranged in two rows. (The two smaller buttons are slightly recessed to make them easy to distinguish by touch.) Out of the box, all four buttons work just like the button on a standard mouse, and I suppose that some people might be satisfied that way. But to really get your money's worth, you have to program the buttons to perform a variety of motion-reducing and timesaving tricks using an application that comes with the Thinking Mouse. For example, you can use the mouse buttons to perform commands like Save or Cut, or type up to 511 characters of text, all without reaching for the keyboard. (Optionally, you can assign up to four modifier keys that can be pressed along with a mouse button for an action to occur. While this increases the number of possible shortcuts, some people may have difficulty remembering what button-key combination does what.)

The Thinking Mouse shares a few other features with Kensington's Turbo Mouse trackball. For instance, you can customize acceleration response—the cursor's sensitivity to mouse movement—more precisely than with almost any other mouse. Another feature called Brilliant Cursor lets

you define locations on the screen called HotSpots. With Brilliant Cursor activated, the cursor jumps to the closest HotSpot when you move the mouse toward it. You create HotSpots by pressing a special key combination and clicking anywhere on the screen. Although getting used to Brilliant Cursor takes some time, this feature can make it easier to navigate large monitors. Another handy feature called Snap To Default automatically puts the cursor over the default button in any dialog box.

**The Last Word** One of the things I like best about the Thinking Mouse is the six pages on work-space ergonomics in the manual, a welcome addition that ought to become standard practice. (You can even set the software to remind you to take breaks at preset intervals.) If you're in the market for a mouse, I recommend the Thinking Mouse highly. —FRANKLIN N. TESSLER





# No matter how fast can't outrun a power

## New Back-UPS: reliable power for your Mac

Just don't have the time for power problems on your Mac? Don't worry. They'll always make the time for you. It's not if a power problem will occur, but when. Due to household appliances, poor wiring, bad weather or even other office equipment, power problems are as inevitable as death and taxes. You can't run, but you can hide, behind APC protection.

**IN THE NEXT THREE MONTHS,  
MORE THAN 30,000,000 PCs WILL BE HIT  
BY POWER PROBLEMS...**

Who needs power protection? If you use a computer, you do. A study in a recent *PCWeek* showed that the largest single cause of data loss is bad power, accounting for almost as much data loss as all other causes combined. Every Mac plugged into an outlet is vulnerable. In fact, you have better odds of winning the lottery than of escaping the sting of power problems. One study found a typical computer is hit 100 times a month, causing keyboard lockups, drive damage, or worse.

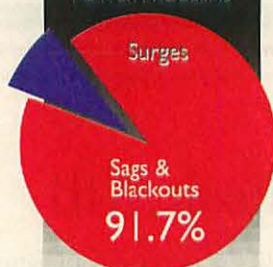
Simply put, if power problems are the least of your troubles, you've got one chance to keep it that way. You insure your car and home with the best policy you can afford. It just doesn't make sense to

CAUSES OF COMPUTER  
DATA LOSS



Source: Contingency Planning

FREQUENCY OF  
POWER PROBLEMS



Source: Bell Laboratories

Power problems are the leading cause of computer data loss, while the most frequent type of power problems are undervoltages and blackouts, which surge suppressors alone are powerless to protect against.

leave your Mac (which is at far greater risk) vulnerable to loss or damage.

### WHY A \$119 APC UPS COSTS LESS THAN A \$9.99 "SURGE PROTECTOR"...

Contrary to most people's belief, a Mac alone has more protection built into it than a low-end "surge suppressor," which is usually nothing more than a well-packaged extension cord. In other words, going without protection is as good as under-spending on one of the most important computer decisions you'll make.

And since sags and blackouts represent more than 90% of power problems likely to hit your Mac, even quality, high-performance surge suppressors are literally powerless to protect your Mac from data loss.

That's why you need instantaneous battery backup power from an APC Uninterruptible Power Supply to prevent keyboard lockups, data loss, and crashes. With an APC UPS, you get six

times the protection of a high-end surge protector for little more than twice the price. And \$119 is much less expensive than false piece of mind.

APC UPSs carry up to a \$25,000 lifetime guarantee against surge damage to your properly connected equipment,

and can suit any application, from servers and PCs, to fax and satellite systems.



**More than 3,000,000 satisfied customers count on APC reliability**



Modern Press President Stephen Hopkins explains, "I protect my Mac Performa with a Back-UPS 400 and the unit works great. The Mac handles all bookkeeping, administrative and estimating functions for the company. It is a critical piece of my business. Unfortunately, we are located in an industrial park... a nice way of saying that our power fluctuates a great deal. After five years of reliable performance from my Back-UPS, power problems are no longer my concern. I can focus my energy on my business instead."



At Cellophane Square, Seattle's best known independent and alternative rock record store, Steve Marcus, Product Buyer, counts on APC to keep his Mac II SI and POS terminals running reliably. "The building where we started out was ancient and full of power problems. I lost lots of purchasing and product related information... until we invested in APC. I chose APC because they offer the most reliable product. I haven't been proven wrong yet. Problems continued in the building, but they were no longer a problem for us."



"We have over 30 APC units on our Macs," says Tim Girvin, principal of Tim Girvin Design, Seattle, WA. "Why do we protect every computer in the firm with an APC? As design consultants working on projects throughout the United States and Asia, 100% productivity is critical to project management. We cannot afford lost files due to power outages because of the complexity of many of the design programs we manage. Lost projects due to unprotected files is simply irresponsible. With APC in place, power problems are not even an issue, we are protected."



# your Mac is, it problem

starting at \$119

## PROTECT YOURSELF OR KICK YOURSELF...

It's been said that there are two types of computer users: those who have lost data, and those who are about to. Prevent the single largest cause of computer problems and join a fast-growing third category: those who protect their PCs with the most reliable protection they can buy: APC UPSs. So ask for APC at your favorite reseller. At just \$119, an APC UPS is serious protection no Mac user should be without.

**MacWEEK** "Ultimately, it's more a question of when - and not if - you should buy a UPS... UPS power protection has never been cheaper or more convenient"

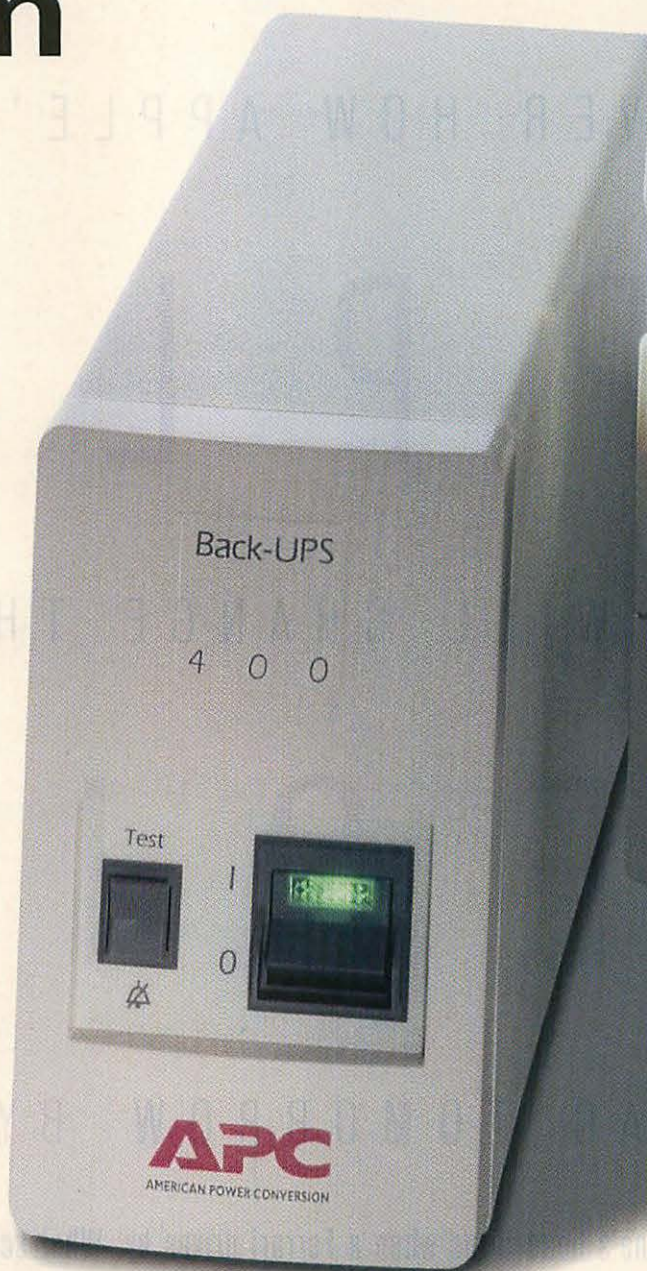
**MacUser** "If you have a server and don't have a UPS, you're playing with fire."



### Back-UPS FEATURES

- ▶ Unmatched surge/lightning protection for maximum hardware safety
- ▶ Site diagnostics automatically spot missing ground and reversed polarity
- ▶ LAN signaling allows simple shutdown with interface kits (400 and above)
- ▶ User replaceable, hot swappable batteries insure uptime safe disposal
- ▶ \$25,000 lifetime Equipment Protection
- ▶ 10 minute runtime with specified applications. For longer runtimes choose next largest unit.

Model	Application	Sugg. List
200	Desktop systems	\$119
280	Desktop systems	\$139
400	MultiMedia	\$199
450	Quadra	\$254
600	PowerMacs	\$359
900	Longer runtime applications	\$529
1250	Multiple systems	\$689



"★★★★...should be standard on every desktop... effective, affordable, designed to last..." --PC Computing



APC products have won more awards for reliability than all other UPS vendors combined

# APC™

AMERICAN POWER CONVERSION

Call 800-800-4APC

Dept. D7

132 Fairgrounds Rd. W. Kingston, RI 02893

Tel: (401)789-5735

Fax: (401)789-3710

CompuServe: GO APCSUPPORT

Internet: apctech@apcc.com

Circle 72 on reader service card



# I N S I D E

DISCOVER HOW APPLE'S THINKING

# A P P L E ' S

TODAY WILL CHANGE THE SHAPE OF

# D E S I G N

THE MAC TOMORROW BY LON POOLE

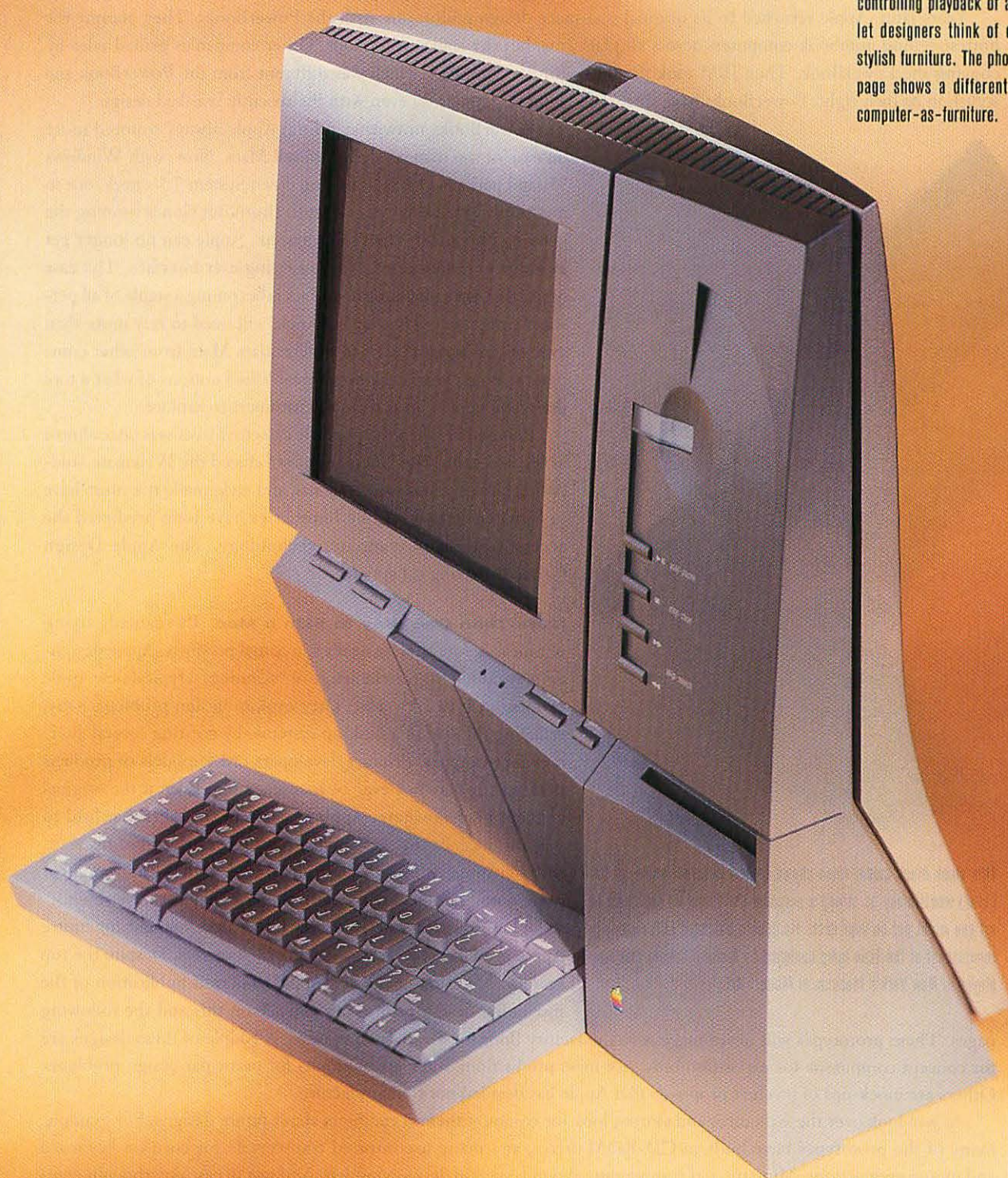
Practically everyone's head turns when a Ferrari drives by. What scores a hit for sports cars, watches, and stereos—sleek design—is now turning heads for computers. Performance, price, and reliability have

**PHOTOGRAPHS BY NEAL BROWN** dominated buying decisions for years. Now, look no further than the ads for hard drives, modems, and even network adapters to spot a changing attitude. As these devices become functionally alike, manufacturers are turning to sleek industrial designs to differentiate their products.



## SMALL IS BEAUTIFUL

Miniaturized components from a PowerBook let Apple designers rethink the idea of a computer as a big box. Instead, small components—flat-panel displays, cordless keyboards, built-in CD-ROM drives, and push buttons for controlling playback of an audio CD—let designers think of computers as stylish furniture. The photo on the next page shows a different approach to computer-as-furniture.





**More Than a Pretty Package** Industrial design is not just a pretty package. The best design is one where the relationship between form and function achieves something greater than the sum of the components.

Apple was the first computer company to understand this. The compact, self-contained look of the original Macintosh emphasized and supported its easy, plug-and-play function and set it apart from other computers of its day. But this design advantage disappeared when the component-based Mac II began to dominate the line in 1987.

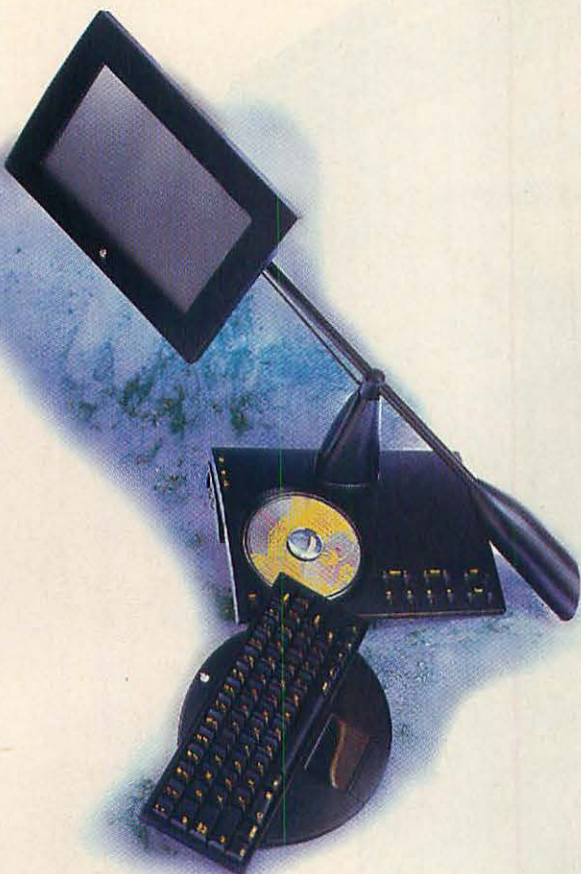
Years later, Apple returned to its original one-piece design philosophy with the PowerBooks. They became the hottest-selling notebook computers across all platforms, but the lead was tenuous. Other companies gained sales by copying the PowerBook. Then IBM took the lead with its ThinkPad, which was different from the PowerBook and stylish in its own right. PowerBooks have since faded a bit in popularity, even with the recently tweaked design.

PowerBooks notwithstanding, Apple always counted more on ease of use than on design to sell Macs. Now, with Windows 95 (and perhaps OS/2) breathing down System 7.5's neck, not to mention various licensees about to churn out clones running the genuine Macintosh Operating System, Apple can no longer get as much mileage out of its trendsetting user interface. The ease of use that once distinguished Macs is becoming a staple of all personal computers. That means Apple will need to rely more than ever on industrial design to differentiate Macs from other computers. When you break down established notions of what a tool does, you open worlds for new customers to explore.

Remember when the portable cassette player was once almost as big as a shoe box? Then Sony introduced the Walkman—old-hat technology, but way-cool size and style made it a must-have personal accessory. Apple luminaries have long predicted the accessorization of computer technology. The Apple Design Group is making it happen.

**More Than One Way to Skin a Mac** By regularly trying out ideas before they're needed in actual products, Apple designers stay poised for the challenge of "skinning" a typical new Apple product in 8 to 12 weeks. They explore design problems—say, reducing the size of a desktop system—by creating several alternative prototypes. Product developers order models of products that may or may not ever be manufactured. Even if the original concept goes nowhere, Apple often gains insights that lead to new products or that get applied to other projects. For instance, today's Apple Adjustable Keyboard and AudioVision monitor came out of designs for an advanced Mac that was never built.

The proprietary designs now under development for future Apple products are very closely guarded secrets. Despite the top secrecy, *Macworld* persuaded Apple to permit publication of the intriguing design prototypes you see on this and the following



This sleek black model (also shown from a different angle on the cover) would make as strong a personal statement as any piece of art you might put on your desk. Its counterbalanced LCD display is reminiscent of the Tizio lamp designed by Richard Sapper and displayed in New York's Museum of Modern Art.

pages. These prototypes will never make it to the factory floor for a variety of reasons. A couple of these designs are for concept computers: for exposition only, not mass production. Some are solutions for particular design problems. Others are mock-ups of product proposals that Apple has decided not to manufacture.

As you look over these pictures and stories, look for common themes and hints about future designs. For example, many of the prototypes have built-in CD-ROM drives, and many use infrared transceivers for cordless keyboard and mouse connections. Miniaturized components abound, even in desktop models. And just in case you thought complete voice recognition was around the corner, notice that keyboards are very much in evidence. Although these prototypes won't become real products, you can expect many elements to show up in real Apple products of the future. **m**

Contributing editor LON POOLE has been writing about Macintosh look and feel since the fall of 1983. He's the author of *Macworld System 7.5 Bible* (IDG Books Worldwide, 1994).





#### **RADICAL NEW LOOK**

The main unit of this dynamic prototype is curved just like today's desktop Macs, but there the resemblance ends. This main unit swivels on the four-footed pedestal so you can get at the floppy disk drive on one side and the CD-ROM drive on the other side. You can swing the main unit without dragging cables because the ports are in the pedestal. The flat display swivels and tilts independently. The display frame contains a microphone, speakers, and an infrared transceiver that connects cordlessly with the keyboard and its built-in trackpad. The emphasis of this radical approach is how you interact with the Mac, not on the Mac itself.





#### NEWTONS FOR ALL

For a personal device, the black Newton MessagePad sure lacks personality. But these Newton designs have plenty. The yellow Sports Newton borrows Sony's Sports Walkman idea—a ruggedized, high-visibility version for people on the go. If you carried a purple Game Freak, people would have no doubt that you're a serious video-game player. The red Newton On Site shows how the MessagePad could be given a custom look for a particular company or application.



## MODULAR OVERKILL

Modularity seems like a winning solution to design problems. Trouble is, people become bewildered by too many configuration options. Case in point: you could configure this system as a pen-based tablet computer, a notebook with keyboard and touchpad, a full desktop computer, and more. The display module is a self-contained tablet computer controlled by a pen. At your main work site you could dock the tablet with a desk module and use the keyboard cordlessly. The desk module would provide more storage, enhanced networking and video, and expansion slots.





## FROM A CEO ON THE GO

Sometimes Apple's designers respond to a hot-button issue from someone at the top. That was the case for this mocked-up videophone married to a PDA, based on sketches drawn by John Sculley, then Apple's CEO. While using the videophone, you could simultaneously link the PDAs to work interactively or exchange data. Designs like this purposefully ignore present-day constraints such as cost and component availability.





# Get With The Program

## 1200 x 1200 dpi, Adobe PostScript Level 2, At the Unbelievable Price of \$3,495.

To succeed, you need a winning program. And as Bo will tell you, a little muscle doesn't hurt either. XANTÉ® offers both with the NEW Accel-a-Writer® 812. This high-resolution laser printer is engineered with print-intensive workouts in mind. With 1200 x 1200 dpi, and true Adobe™ PostScript™ combined with a fast 33 MHz AMD 29030 RISC processor, you'll have all the power and flexibility you need to stay ahead of the competition — and at a price that won't weigh you down. So, if your success depends on the quality of your output, you better get with the program.

### XANTÉ's Winning Program

- ✓ 1200 x 1200 dpi for exceptional halftones and incredibly smooth text and graphics
- ✓ Adobe PostScript Level 2 to guarantee peak performance, quality, and software compatibility
- ✓ Fast processing with a 33 MHz AMD 29030 RISC processor, 16 MB of RAM and XANTÉ's advanced controller architecture
- ✓ Halftone Calibration Technology that adds more definition to your halftone images
- ✓ Simultaneous interfacing between LocalTalk®, Centronics® parallel, and RS-232 serial
- ✓ HP PCL® 5 and HP-GL® 7475A emulations
- ✓ Ethernet® networkability, with concurrently active EtherTalk® and TCP/IP, as an option
- ✓ Supports letter, legal, A4, B5, and executive paper

XANTÉ's Accel-a-Writer 812 — *it has our competition scrambling for the gym!*

For immediate output results call XANTÉ today.

**1-800-926-8839** ext. 2115  
Dealers call ext. 2116 Fax 334-476-9421

MasterCard/Visa/American Express/Discover

 **XANTÉ**  
*Innovations In Output*



© 1995 XANTÉ Corporation. XANTÉ and Accel-a-Writer are registered trademarks of XANTÉ Corporation. Adobe, PostScript and the PostScript logo are trademarks of Adobe Systems Incorporated or its subsidiaries and may be registered in certain jurisdictions. Other brands and product names are trademarks or registered trademarks of their respective owners. XANTÉ Corporation, 2509 Evergreen St., Mobile, AL 36688. Post Office Box 16345, Mobile, AL 36616-0025 USA. Tel. 334-476-8189.



**Adobe PostScript**



What you print should  
match what you see and scan. Here's how  
to make it happen. **The**

# Color You Expect

EVER PLAY THE CHILDREN'S GAME TELEPHONE?  
YOU WHISPER SOMETHING IN ONE PERSON'S EAR,  
WHO REPEATS IT TO THE NEXT PERSON, AND  
SO ON. THANKS TO THE WAY PEOPLE TALK AND  
LISTEN, AND THE ASSUMPTIONS THEY MAKE, YOUR

message, "The weather is fair in Monte Carlo this year," eventually turns into "They went to the fair and found Carl'd lost his ear." The last person in the chain receives a message, but it's not the message you sent. Getting correct and consistent output in electronic publishing can seem mighty similar, except that the subject at hand is color.

It all starts with an eyewitness account of the colors in a photograph or other image as reported by an input device. The input device—a scanner or a digital camera—reads each color to the best of its ability, using a system of red-, green-, and blue-coated charge-coupled device chips that mimic the red, green, and blue cones in the human retina. The result is an image described in terms of RGB color space.

The scanner sends its digital rendition of the original to your image-editing software so you can view it on the monitor. Aging phosphors may have lessened the monitor's reliability, and besides, you have the contrast turned all the way up. And who knows what the ambient lighting conditions are? But based on what your eyes see, you work away, blithely distorting the color story even further.

Then you export the image to your page-layout program, which conveys the color information to an output device, most likely a printer. The printer has a far more limited vocabulary—just the cyan, magenta, yellow, and black inks with which it re-creates your colors. The printer's version of your original story, therefore, must be translated from the RGB to the CMYK color space.

If your final output doesn't match your original image or the modified scan as it appears on screen, don't be surprised. Each type of device, even each manufacturer's implementation of the same type of device, interprets colors differently. And color-output devices print to different media—coated paper, color slide film, even final separated plates—using fundamentally different technologies such as thermal wax, dye sublimation, and exposed film.

## Variations on the Color-Matching Theme

A color-management system (CMS) is a kind of diplomat, faithfully representing color as described by each device involved in the process—from the input color space through the monitor color space to the output color space. It is the job of a CMS to understand the foibles of each device in your arsenal, convert color spaces where required, and take into account different calibration solutions. Currently, six CMS products are out there vying for your attention: Apple's ColorSync, Monaco Systems' MonacoColor, Eastman Kodak's Precision Input Color Characteri-

by Deke McClelland







zation, DayStar ColorMatch, Agfa's FotoTune, and Electronics For Imaging's EFIColor Works.

A complete CMS is not the only color-matching solution, however. If you're really concerned about matching the image you create on screen regardless of what the original scan looked like, a simpler scheme may serve you better. Colorific from Sonnetech and Color-Composer from Radius both approach color matching as a matter solely between your monitor and your printer, ignoring the input color space entirely (see "Simple Color Matching").

Another exciting development on the color horizon is Light Source's Colortron, a hand-held device that reads colors from any surface, allowing you to match a single color with its counterpart on screen and on press with supreme accuracy. Not intended to manage thousands or millions of colors at a time, Colortron is the first desktop device capable of monitoring key colors and spot colors across the board (see "Low-Cost, Precise Color Measurement Comes to the Mac").

## 50 Ways to Name Your Color

Color-management systems all work toward matching colors as seen in a model lighting environment. The idea is that regardless of where you are in the electronic publishing process—scanning an image, editing a document on screen, or printing a composite proof—what you see on screen should match both the original photograph and the final output as viewed in this ideal setting.

To make this happen, a CMS has to calculate color transformations based on how human eyes perceive colors under these specific lighting conditions. The entire spectrum of light visible to the human eye is described according to CIE standards (named for the International Commission on Illumination). CIE is also known as device-independent color, because it is not dependent on the color-creation capabilities of some transitory piece of machinery. The only meaningful "device" is the human eye.

Several digital interpretations of CIE exist. Each has its own acronym—Kodak's YCC for Photo CD, for example, and Lab employed by Adobe Photoshop—but they all refer to the visible spectrum, not to the colors machines recreate using the RGB or CMYK space. To convert a color back and forth between a machine-specific color space and the larger world of CIE, a CMS has to consider three variables.

**Gamut** If you were to plot the visible spectrum on a 3-D graph, the boundaries of this globular shape would repre-

sent the CIE gamut. All colors outside this gamut—such as infrared and ultraviolet—are invisible to the human eye. Photographic film, RGB display, and CMYK printing each have different, though overlapping, gamuts, all of which fall well inside the CIE space. The CMS has to be aware of the size of each gamut in your system so that a document's colors remain accurate throughout the publishing process.

An aspect of gamut that is frequently overlooked is its density. For example, a 48-bit RGB and a 24-bit RGB image have the same size gamut, but the 48-bit image's gamut packs several million times as many colors into this space. Believable output depends on the CMS's ability to juggle color from a large to a small gamut. If too many colors pile up in one relatively small area of the gamut, you might get smooth transitions in blues and greens, say, but banding in reds and yellows.

**Profile** Every brand of scanning, displaying, and printing device excels at generating certain colors within its gamut and does a poor job with others. For example, a scanner that overemphasizes greens and underemphasizes reds will result in a color cast. A profile (or characterization) is a file that developers write to provide hints for getting the best color reproduction from their devices. Color-management systems use these profiles to negotiate the best color reproduction from one device to another.

**Calibration** A device profile represents its own kind of ideal. The standard profile for a monitor, for example, may well represent how the device performed the day it arrived in your office, but with time and use, color display capabilities tend to wander off course. Professional-quality devices such as imagesetters and drum scanners include calibration software to keep them performing up to snuff. You can even calibrate midrange monitors using a device, such as DayStar's Colorimeter 24, that adheres to your screen and evaluates the accuracy of certain RGB combinations. A system extension loads every time you start up your computer and changes your display as warranted by the calibration results.

A desktop scanner, however, is not a device you can calibrate by adjusting its internal optics. You have to correct images after they are scanned using a custom profile, which you are advised to update on a more or less monthly basis. MonacoColor, Kodak Precision, Agfa FotoTune, and EFIColor Works all allow you to create your own input profile by scanning a reference target and using software to evaluate the scan. Monaco, Kodak, and Agfa provide industry-standard IT8 targets;

EFI includes a modified version with fewer than half as many colors. When you finish, the scanner remains in the same shape it ever did; only its profile changes.

## The Color-Management Process

Maintaining color fidelity among devices designed to work together is tough; but to test the current crop of CMS offerings, *Macworld* re-created the more typical production scenario, assembling input, display, and proofing devices from different vendors. The scanner was an Arcus II from Agfa. The SuperMatch PressView 21•T monitor and Thunder II GX•1600 video card came from Radius. And we used two printers—a Phaser 220i Color Printer thermal-wax device from Tektronix and a top-of-the-line Rainbow color proofer from 3M. With this setup, I discovered five potential steps in the color-management process:

1. *Characterize the scanner.* First scan an IT8 target (some CMS products provide them). Next, use the CMS's characterization utility to open the scanned IT8 target file. By comparing the scanned target with the settings for ideal targets, the characterization utility determines how to adjust the scanner so the colors of the scanned target would match the factory-set ideal target; the CMS then saves that information to disk as a profile for use with other scans.

2. *Calibrate and characterize the monitor.* Hardware calibrators, such as DayStar's Colorimeter 24 or the SuperMatch Display Calibrator Pro included with the PressView 21•T, can precisely measure the phosphors and the white point (the color temperature of the lightest value) of your display. The CMS uses that information to write a monitor profile to disk, and a system extension corrects the color output every time your computer starts up. If you don't own a calibrator, you can use one of the preset monitor profiles provided with the CMS package.

3. *Transform the scan to the monitor color space.* After scanning an image, you use the CMS to convert it from the scanner color space to the monitor color space. Of the current raft of CMS products, all except ColorSync rely on Adobe Photoshop for the conversion. ColorSync relies on your scanner's software to support the conversion.

4. *Print the image to a PostScript Level 2 device.* PostScript Level 2 allows vendors to build color-correction options into the PostScript printer description (PPD) file. Tektronix is one of the few vendors currently taking advantage of this option. When using the LaserWriter 8 printer driver (or a customized LaserWriter 7.1.2), you can correct to match



## Low-Cost, Precise Color Measurement Comes to the Mac

When it comes to matching colors objectively, you can't trust your eyes, even under ideal lighting conditions. What you need is a spectrophotometer, an electronic device that gauges colors with absolute numerical precision.

By far the most exciting and least expensive spectrophotometer available for Macintosh users is the Colortron from Light Source (\$1195, 415/925-4200). Using a diffraction grating to measure color, rather than colored filters as do most scanners and some other spectrophotometers, the Colortron takes readings at 10-nanometer (nm) intervals across the entire spectrum of visible light (380nm to 700nm). Then, by either the ADB or serial port, the Colortron sends the spectral data to the Mac.

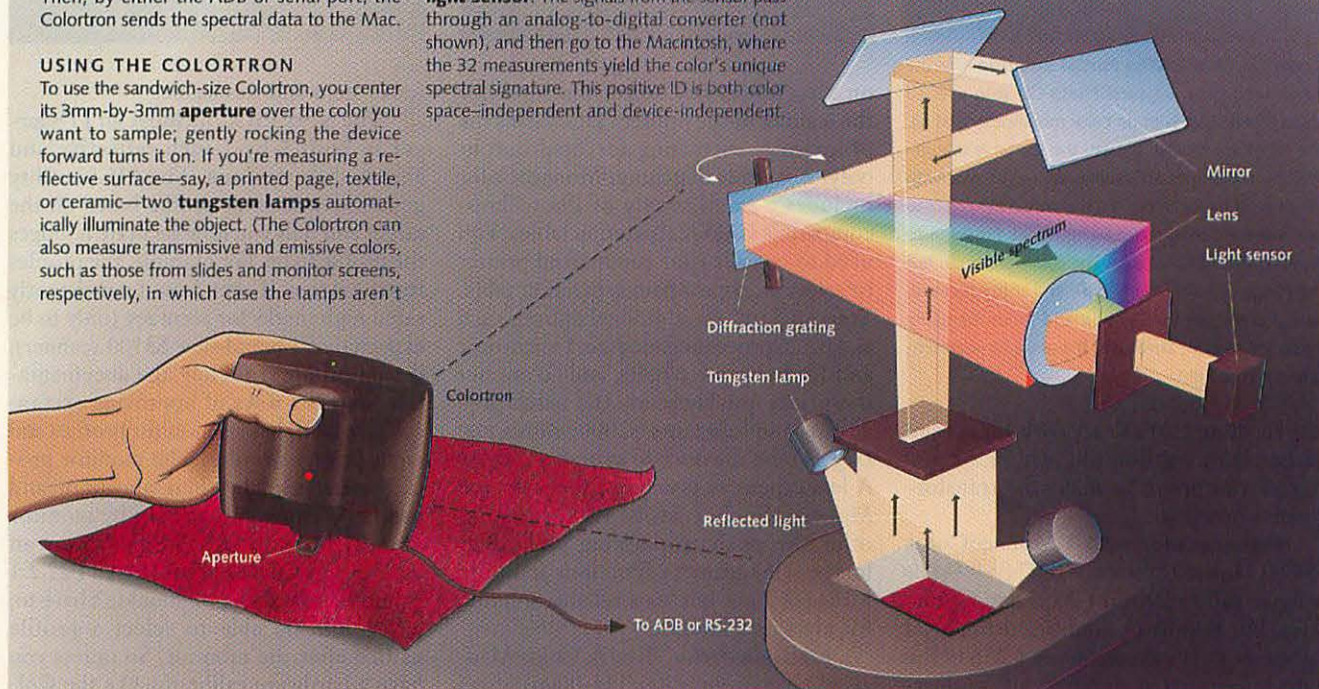
### USING THE COLORTRON

To use the sandwich-size Colortron, you center its 3mm-by-3mm **aperture** over the color you want to sample; gently rocking the device forward turns it on. If you're measuring a reflective surface—say, a printed page, textile, or ceramic—two **tungsten lamps** automatically illuminate the object. (The Colortron can also measure transmissive and emissive colors, such as those from slides and monitor screens, respectively, in which case the lamps aren't

needed.) **Reflected light** passes into the Colortron and bounces off two **mirrors** onto the **diffraction grating**, which acts like a prism, separating the light into its component parts according to wavelength. A motor rotates the grating on a vertical axis in 32 distinct increments, one for each 10nm slice of visible light energy. The grating directs each of the 32 diffracted bands through a **lens** and onto a **light sensor**. The signals from the sensor pass through an analog-to-digital converter (not shown), and then go to the Macintosh, where the 32 measurements yield the color's unique spectral signature. This positive ID is both color space-independent and device-independent.

### TWO ADVANTAGES

The Colortron avoids two problems found in some other spectrophotometers. Because it uses the diffraction grating to split the light, it is not subject to color drift that occurs when filters age. And because the diffraction grating rotates, the Colortron uses a single light sensor, eliminating the noise and recalibration problems associated with multiple-sensor devices.



the display, emulate the press, or boost the saturation of washed-out colors. This has no effect on the original image file.

5. *Separate the image for proofing or offset printing.* From inside Photoshop, you can convert an RGB image to the CMYK color space using separation tables. Only ColorSync lacks Photoshop color-separation tables. The separated CMYK image can be printed exactly as is from QuarkXPress or Adobe's PageMaker.

Optionally, you can skip step 3 and convert directly from the scanner to the printer space according to a printer profile. Then you trust a CMS XTension for QuarkXPress to convert the corrected image to the CMYK color space. DayStar and EFI both provide such XTensions, as does the software that accompanies the 3M Rainbow.

### Managing the Rainbow

Every CMS on the market escorts digital colors from concept to output. But each works in its own peculiar way, offering its

own benefits and drawbacks. They all work given the right conditions, but I didn't discover a perfect system. What follows is the current state of the CMS product universe, explored in terms of how each one addresses the three pivotal issues—scanning, display, and output.

**ColorSync 1.0.5** ColorSync is a CMS in progress from Apple (408/996-1010). Version 1.0.5 ships with System 7.5 and is a cornerstone of QuickDraw GX (though QuickDraw GX is not required to run ColorSync). ColorSync is the picture of simplicity: you simply choose a profile for the device that you want to match from a pop-up menu. ColorSync converts RGB colors to the CIE color space and generates new RGB values for display on screen and conveyance to a PostScript Level 2 printer.

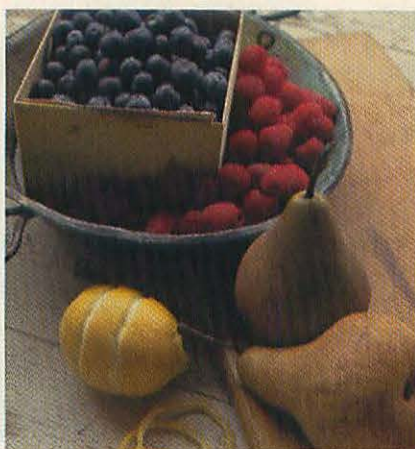
But the Apple CMS relies heavily on third-party applications to support it, rather than actively supporting the applications, as its competitors do. First, System 7.5 ships with only a handful of Apple-brand monitor profiles, so you

have to look elsewhere for third-party hardware characterizations. Further, Apple provides no utilities for characterizing and calibrating hardware, requiring you to buy additional software and hardware (a hidden cost in this otherwise free CMS). Then too, a scanning application must seek out ColorSync in order to make the transformation to the monitor color space. So far, Light Source's Ofoto is one of the few applications to seek out and use ColorSync data. Then there's the matter of making the conversion to the printer. The LaserWriter 8 printer driver is ColorSync aware, enabling most midrange color PostScript Level 2 devices to take advantage of it, so long as they ship with ColorSync profiles. Pixel Resources' PixelPaint Pro 3.01 not only ships with ColorSync printer profiles developed by Pantone for use with its Open Color Environment (POCE), it also lets you preview an image as it will print from a specified ColorSync-profiled device. However, there are no profiles for printing presses, and most professionals prefer





**Color Correction: The Partial Solution** In the first image (left), a typical Photo CD scan opened inside Photoshop with no color modifications at all, the pears are reddish brown, the lemon is orange, and the raspberries are purple—all out of sync with the original transparency. I transformed the colors to my monitor's color space using Kodak Precision to arrive at the middle image. The colors are truer, but the image remains overly dark and softly focused. Last, I corrected the lighting and focus manually inside Photoshop, arriving at the accurate representation on the right.



JOHN REED FOISMAN

to see their CMYK artwork on screen rather than trusting the printer's PostScript interpreter to make the transformation invisibly.

**MonacoColor 1.51** MonacoColor (\$495; Monaco Systems, 508/749-9944) is a more fully realized CMS than ColorSync but requires a significant financial investment. It's the strongest CMS of the bunch in terms of automatically evaluating and correcting scanned images. The program ships with two 4-by-5-inch IT8 reference targets: one is a transparency; the other is reflective, for calibrating scanners. Monaco's extensive documentation takes great pains to explain how to properly scan either target using any of several brands of desktop scanner.

Rather than operating at the system level, as the other color-management systems do, the heart of MonacoColor comprises two Photoshop plug-ins. One lets you save the target to disk in a proprietary format; the other calibrates the scan. Calibration involves not only color correction but also color-cast compensation and unsharp masking. The result is a corrected scan that's ready to import into a layout program. And because you apply MonacoColor from inside Photoshop, you can easily undo the automatic corrections if they don't suit your needs.

Beyond scanner calibration, however, MonacoColor is a mixed bag. It assumes that your monitor is fully calibrated. This CMS includes no profiles for different monitor brands, so what you see

on screen may not be faithful to either the scanner or the printer. This means the program is correcting for final output only. For press matching, MonacoColor includes a small supply of Photoshop-compatible CMYK separation tables. You need to consult your commercial printer to select an appropriate separation table. You can purchase additional options such as a batch processing module, Fujichrome and Kodachrome targets, and so on; but the prices quickly soar—the batch processing module costs \$2000; additional targets raise the price to as high as \$4000. A less expensive version of the software, MonacoMatch, costs \$149. It does not offer the unsharp masking and other image-enhancement functions found in MonacoColor, but it's a reliable solution for users on a budget.

**Precision Packs** Kodak Color Management Systems (800/344-0006) offers three solutions and plans to comarket a fourth with DayStar Digital. For end users the two most useful solutions are Precision Input Color Characterization 3.0 (PICC, \$295), for calibrating scanners, and the Device Color Profile Starter Pack 2.0 (DCP, \$69), which is a collection of monitor and printer profiles. For a cradle-to-grave CMS, you need both PICC and DCP. When you scan an image from inside Photoshop, the Kodak CMS Acquire module (which ships with Photoshop) asks you to select both an input profile and an output profile before taking you to your normal scanning software. The output profile is for either a monitor or a printer. Precision allows you to correct for the monitor and then in a separate step convert to the CMYK output space, or correct directly for the printer and not worry about how the image looks on screen. If you plan to edit the image significantly in Photoshop, you should opt for the former. If the image is fine and you plan merely on importing it into your layout package, then transforming the colors according to the printer profile involves

fewer steps and less hassle.

The \$295 PICC includes an IT8 target in both 5-by-7-inch reflective and 35mm slide versions. The PICC utility generates a scanner profile based on the target and tells you how accurate it judges the profile to be. For example, the profiles for the Arcus II that I used consistently rated high marks for accuracy (only to be expected of a brand-new \$3500 scanner); if your profile ranks low, the documentation suggests ways of improving accuracy. The DCP has six monitor profiles and eight printer profiles. The monitor profiles are named by their phosphor and gamma settings rather than by monitor brands. Most of us wouldn't know an EBU 1.5 gamma monitor from a P22 2.1 gamma, and frankly, we shouldn't have to; we should be able to select a profile named after the monitor. So unless you have a hardware calibrator like the Colorimeter 24—with which PICC is fully compatible—you'll probably want to correct for your output device. The DCP includes four proofing and copier profiles—three bearing the Kodak brand—and four press profiles (two domestic, one European, and one Japanese). One bonus of PICC over its competitors is that it can also correct Photo CD images. Even if you don't include an IT8 profile along with your photos for inclusion on Photo CD—as Kodak recommends—the CMS Acquire module includes generic profiles that performed reliably in my tests.

Kodak's third solution is the PCS100 Kit. Priced at \$7500, this system is only for serious professionals, including design houses, service bureaus, and commercial printers. It includes a NuBus acceleration card for processing transforms from the Photo CD YCC space. (If you've ever tried opening a Pro Photo CD image using the Acquire module, you know how exasperatingly slow this process can be.) A native Power Mac version of the module just recently shipped. The PCS100 Kit also includes output profiles and a 16-bit



display calibrator. For the professional on a budget, Kodak plans to bundle its PICT with DayStar's ColorMatch, Colorimeter 24, and PhotoMatic (a Photoshop automation package). The bundle is slated to ship in 1995 and list for \$995.

**ColorMatch** ColorMatch (company's estimated price \$219; DayStar Digital, 404/967-2077) is basically an expanded version of the Precision software. DayStar has licensed the Precision system extensions and included a larger supply of Precision-compatible profiles. Though it lacks the scanner-calibration capabilities PICT provides, ColorMatch is a good choice for designers and independent artists because it allows you to calibrate your display and easily transfer corrected images from Photoshop to QuarkXPress. It includes a monitor-profiling utility called ColorSet that works both with the Colorimeter 24 and without it. If you don't have a Colorimeter, you can select one of the preexisting monitor profiles and edit its gamma (the position of the

medium gray value) and white point.

To use ColorMatch, you first scan an image into Photoshop without any adjustments, just as when using MonacoColor. You then apply the automated correction function, which transforms the image from the color space specified by the selected scanner profile to that specified by the monitor profile. After editing the image on screen as desired, you save it to the ColorMatch TIFF format. ColorMatch asks you to specify the output device for the image and converts it to CMYK according to the printer profile.

After correcting the image, you have the option of importing it into QuarkXPress, where another ColorMatch utility takes over the separation process. This way, ColorMatch can correct the entire document, not just the image. Because the image is already separated into CMYK, it will print accurately from PageMaker or some other ColorMatch-unaware program. In this case, the document itself remains uncorrected.

ColorMatch does not include any profiles for the Arcus II scanner and the PressView that I used—but by using PICT to characterize the scanner and the SuperMatch Display Calibrator Pro to characterize the monitor, I was able to make ColorMatch work just fine. In fact, when combined with PICT, ColorMatch is one of the most affordable and functional color-management systems around. It still needs more profiles—particularly for proofing devices—and it can be slow in searching for profiles on disk, but it does a good job of managing the gamut in a way that both works and makes sense to most designers.

**FotoTune 1.1.3** Agfa Division of Miles (508/658-5600) offers FotoLook, a scanning program bundled with Agfa devices, and FotoTune, a \$395 desktop CMS package that is likely to meet the needs of most electronic publishers and artists. FotoTune integrates its own scanner-characterization capabilities. The program requires that you perform a lit-

## SIMPLE COLOR MATCHING

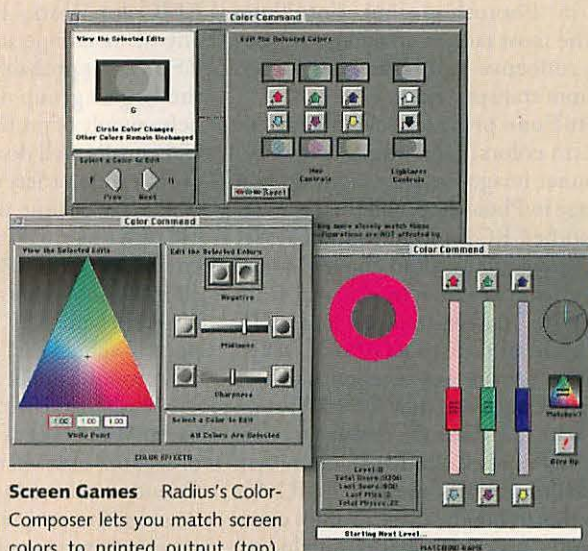
**W**hat if your color-matching needs are localized? You work alone; maybe you use scanned images but don't have your own scanner. What you care about most is matching what you see on screen to the printed output. Do you really need to install a full-blown color-management system and calibrate every piece of hardware in your office just to get predictable color? No.

Two new products, Colorific from Sonnetech and ColorComposer from Radius, handle localized color matching without the fuss. Colorific matches your printed output to your screen display by relying on ColorSync to translate the monitor profile to your printer. ColorComposer works without any CMS at all: a system extension calibrates your screen at start-up to match your printed output. In both cases, it's up to you and your image-editing software to apply whatever changes you want to your digital images; the software merely ensures that what you see on screen is

a reasonable facsimile of what you'll get from your printer.

**Colorific** comes bundled with many makes of medium-priced monitors, including those from NEC, Nanao, and Mitsubishi. Colorific automatically installs ColorSync on your computer along with a base profile for your brand of monitor. You then modify the profile to match your exact monitor by matching a series of on-screen colors to a card that you stick to your screen. After you save the modified profile to disk, the ColorSync CMS translates the profile to any PostScript Level 2 device. In my testing, I found the colors are a surprisingly good match. Solid colors matched well, but banding was pronounced in gradations; this banding is due to color redistribution, especially on low-end printers. Colorific isn't suitable for presswork, but it's just the thing for overhead transparencies, color copies, and other office work.

**ColorComposer** takes the opposite tack. Compatible exclusively with Radius and SuperMac video boards, the

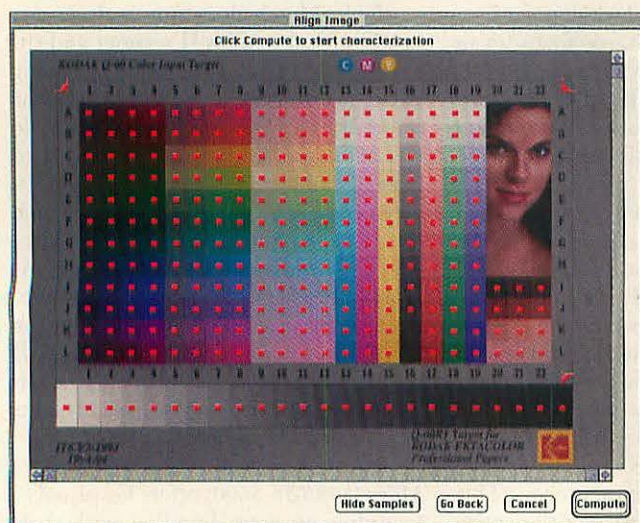


**Screen Games** Radius's ColorComposer lets you match screen colors to printed output (top), adjust the white point and color cast by simply dragging a point inside an RGB triangle (left), and test your visual abilities and your understanding of RGB color theory by playing a color-matching game (right).

utility lets you manipulate your screen display until it matches your color output. Radius provides an image file containing a color photograph and a number of neutral targets. After printing this image on the printer you want to match, you adjust a series of on-screen targets to match the

output (see "Screen Games"). You can save printer settings for each printer you use. Unlike with Colorific, you can use ColorComposer to match imagesetter and film-recorder output accurately. Radius currently bundles ColorComposer gratis with all new Thunder video boards.





**Characterizing Your Scanner** Like MonacoColor and FotoTune, Kodak's Precision Input Color Characterization package ships with an industry-standard IT8 target. After scanning the target, the PICC software locates and evaluates the significant color areas, as indicated by the red dots. Then it compares these colors with its internal definitions and generates an appropriate profile.

tle more up-front work than do either MonacoColor or PICC—adjusting a few levels in Photoshop—but FotoTune offers the most targets, including a 5-by-7-inch reflective and both 4-by-5-inch and 35mm transparencies.

FotoTune provides several ways to transform colors. One way is to correct the scanner image for your monitor, edit the image in Photoshop, and then convert the modified RGB image to the CMYK output space. Or you can convert colors directly from scanner to printer, from scanner to device-independent CIE space, or from CIE to RGB or CMYK. FotoTune provides conversion modules for both Photoshop and QuarkXPress, along with 12 disks of device profiles (which Agfa calls ColorTags), more than any desktop CMS except EFIColor Works. Refreshingly, these profiles cover all types of proofing devices—including ink jet, thermal wax, Xerographic, and dye sublimation—so you can get color-corrected output even from relatively inexpensive machines. FotoTune also bundles profiles for three Agfa film recorders. However, there are no direct-to-printing-press profiles. Rather, you can correct for an offset-printing application—such as Agfa SetPrint—or for AgfaProof or dry-proof dyes.

FotoTune can skip the conversion to the CIE color space by establishing direct device-to-device conversions, called ColorLinks (also an option with the PCS100 package). (Agfa claims each transformation may potentially yield numerical

few liabilities. It's a little pricier than ColorMatch and PICC, and it doesn't let you edit monitor profiles. But it's a stalwart package, especially if you frequently work with Agfa input or output devices.

**EFIColor Works 2.0** Electronics for Imaging (415/286-8600) seems to have the unique vision that a CMS should be self-contained, customizable, and inexpensive. In fact, although at \$199 EFI's EFIColor Works 1.0 sells for less than any of its competitors save ColorSync, EFIColor is probably the best solution for the largest group of users. It includes a hefty supply of profiles, it is well packaged and equally well documented, and it supports a wide variety of programs. In addition to working with Photoshop and QuarkXPress, EFIColor can be used to govern colors in EPS illustrations exported from Adobe Illustrator and Macromedia FreeHand. EFIColor Works also supports Cachet, EFI's image color editor and proofing application.

With that in mind, be aware that EFIColor Works needs to beef up in the area of scanner characterization. Though sufficient for correcting scans from low-end devices, the program's imprecise reference targets are unlikely to satisfy color professionals. On the plus side, you can use the Profile Editor utility to modify the settings for any device characterization. Scanner RGB curves; monitor white point and phosphor values; and printer dot gain, halftone settings, and transfer functions are all up for grabs. With experience and a few hardware-calibration tools, you can make any profile subscribe to your exact requirements.

EFIColor Works allows you to separate images inside Photoshop using separation tables, or simply to import RGB images into QuarkXPress to be converted and separated. An EPS XTension lets you correct object-oriented illustrations

errors that can result in image degradation.) You create a ColorLink by pairing two profiles—one for your scanner with one for your monitor, say. It takes FotoTune several minutes to create a ColorLink, but once it is finished, the ColorLink helps automate and accelerate future transformations.

All in all, FotoTune is a well-developed CMS with

as well. EFIColor Works claims to be the only CMS able to convert from one CMYK color space to another, a must for illustrations and high-end drum scans. EFI provides profiles for direct offset-press printing and for digital color copiers. It's not the perfect CMS we've all been waiting for, but it is functional, affordable, and generally easy to use.

## The Last Word

Someday our computers will quietly resolve all the complexities of color management in the background, but first several obstacles must be overcome. Compatibility poses perhaps the largest hurdle. Right now, color management is a closed system, revolving largely around scanning into Photoshop and printing from either Photoshop or QuarkXPress. If you print from some other application that isn't a staple of the prepress market, a CMS is significantly less helpful. All the careful color matching you applied to a scanned image is likely to go straight down the tubes. Want to see things fall apart completely? Try crossing over to the Microsoft Windows environment. Graphics professionals working in the Windows 3.1 environment eagerly await serious color-management tools.

What the computer-graphics world awaits most eagerly is a system-level solution that applies equally to all Macintosh applications and translates to the Windows platform with no adverse effects. This is the promise of Apple's ColorSync 2.0, due out this spring. The new version subscribes to the universal profile format currently being developed by the International Color Consortium (ICC). Third-party developers will also be able to plug their own professional-quality CMS functions into ColorSync 2.0, eliminating the need for the current crop of incompatible CMS solutions. Big players in the color publishing world, including Kodak, Agfa, EFI, Radius, and Nikon all pledge to support ColorSync 2.0. Meanwhile, Windows 95 will integrate Kodak Precision, which will also reportedly support the ICC standard format. Sun Microsystems and Silicon Graphics have plans to integrate Precision into their workstation operating systems as well. Of course, whether any of this will actually occur is anyone's guess. Apple has been promising a system-level CMS for two years. And should any of the players—Apple, Microsoft, Kodak, or the ICC—drop the ball, cross-platform CMS will have to wait until 1996 or later. **m**

Contributing editor DEKE McCLELLAND is the author of *Photoshop 3 for Macs for Dummies* (IDG Books Worldwide, 1995).





*Helpful advice.*

STOCKS		
Current Market Snapshot		
Index	High	Low
Dow Jones	3577.23	3597.23
S&P 500 Index	447.97	441.40
NASDAQ Composite	721.26	719.00
London Gold Fix		
Country	U.S.	\$ Equiv.
Yen	8.0092	
Deutsche Marks	0.5055	

*Stock updates.*



*Hourly weather updates.*



*Consumer Reports online.*



*A friendly interface.*

## WHY JOHN NAGY'S MAC LOVES COMPUERVE.

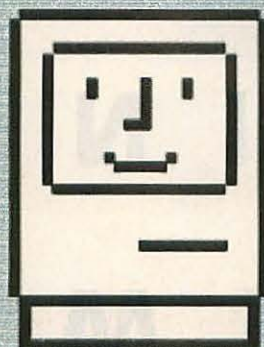
From: John Nagy  
To: 1 Bruce Car  
Subject: Changes

John:  
How are you doing  
now I'm afraid to  
think about this

*E-mail.*



*Shopping.*



*Gardening Forum.*



*Airline reservations.*

Mac Communications  
Mac Community Clubhouse  
Mac Developers/Programmers  
Mac Entertainment Forum  
Mac Hardware Forum  
Mac Multimedia Forum  
Mac New Users/Help Forum  
Mac Scripting/HyperCard  
Mac System Forum +  
Newton/PIE Forum +  
Newton Developers Forum

*Over 20 Mac forums.*



*Virus updates.*



*Science Fiction and  
Fantasy Forum.*



*Downloadable programs.*



*Desktop publishing  
assistance.*

It's because CompuServe makes John's life so exciting. John talks with friends all over the world. He meets far more, and far more interesting, people. He shops, tries software demos, and checks the weather where his sister lives.

He even learns new and better ways to use his Mac in CompuServe's Mac forums. All this excitement makes John happy, and keeps John's Mac busy. And, as we all know, a busy Mac is a happy Mac.

### Free Membership Kit\*

Join CompuServe now. Just call 1 800 881-8961 (1 614 529-1349 outside the U.S. and Canada), and you'll receive:

- 1) A free membership kit. CompuServe Information Manager software for Macintosh, DOS, Windows, or OS/2.
- 2) One free month of over 100 popular basic services, a \$9.95 value.
- 3) A \$25.00 usage credit to explore other extended services.

All names listed are proprietary trademarks of their respective corporations.  
\*New members only, please.



**CompuServe**

The information service you won't outgrow.

Circle 66 on reader service card



The new 28.8-Kbps modem standard  
is much faster—speedy enough  
for the Internet. Macworld Lab  
looks at the first V.34 products.

# BLAZING MODEMS

NOW THAT YOU'VE FINALLY GONE AHEAD AND BOUGHT A 14.4-KBPS  
MODEM, THE NEW, TWICE-AS-FAST V.34 STANDARD HAS ARRIVED, PROMIS-



ING 28.8-KBPS CONNECTION RATES  
TO SPEED DOWNLOADS, ONLINE  
NAVIGATION, AND REMOTE ACCESS.

Within weeks of the V.34 standard's being set in the fall of 1994, modem makers were already selling modems using that technology for fairly low prices (around \$250), and by the end of this year you can expect V.34 modems to be even cheaper, supplanting 14.4-Kbps modems as 14.4-Kbps modems supplanted 9.6-Kbps (9600-bps) modems a year earlier.

There's no question that V.34 modems will soon be commonplace (the table "Who Offers V.34 Modems?" lists the companies that expect to offer modems by the time you read this). But when should you adopt this technology? The first products range from top-notch to so-so, and it will take some time for

the market to settle into predictable reliability.

Macworld Lab tested the new V.34 modem technology on the first available products. As with most new technologies, there were a handful of problems mixed in with a lot of benefits. The benefit that you will find by adopting this technology depends on what you use a modem for.

## Why Buy V.34?

As early adopters of 14.4-Kbps modems found, owning a fast modem doesn't mean you can take advantage of its speed. The rest of the world is still using slower technology, forcing you to slow down with it. Even today, many 14.4-Kbps-modem users must connect to online services or bulletin boards or remote-access servers at 9.6 Kbps. But about a year after 14.4-Kbps modems became popular and inexpensive, the modem infrastructure is starting to catch up to 14.4 Kbps; most online services and BBSs offer at least some 14.4-Kbps connections. And it looks as if 28.8 Kbps will catch on as fast or perhaps even faster.

**Online Services** This year, the most common use for a modem is hooking up to online services such as eWorld, Prodigy, and America Online. Online services don't own their own telephone lines and equipment; they depend on long-distance telecommunications companies with local phone access in thousands of locations. Converting these distributed locations to new technology is a major expense, not to mention a major logistical headache. Even though the major online services began converting to 14.4 Kbps last fall, most connections remain at 9.6 Kbps.





**V.34 Engines** Three modem chip sets—from Motorola, Rockwell, and AT&T—power most of the new 28.8-Kbps modems. The three modems here represent users of each chip set.

## BY JEFF ANGUS

ing a 28.8-Kbps connection makes a real difference when using Internet services with graphical interfaces like Mosaic and Netscape: what at even 14.4 Kbps is too slow becomes acceptable at 28.8 Kbps.

**BBSs** It's not surprising to find BBSs as the most rapid upgraders to the new equipment: manufacturers such as Supra Corporation run aggressive, deep-discount promotions for BBS operators. File upload and download are the most common interactions on most boards, and that's where the V.34's speed becomes a significant advantage.

**Corporate Networks** The biggest beneficiaries of V.34 modems will be wide area networks (WANs) and point-to-point connections that have identical equipment at each end. Macworld Lab found that modems from the same manufacturer are more likely to talk to each other at maximum throughput than are modems from different manufacturers. This happens because modem standards leave room for individual innovation.

**Remote Access** New V.34 equipment is a big win for users of Apple Remote Access (ARA) and other remote-control-related software. Because these programs use a lot of resources to show the graphical interface, throughput is a big issue. But if you're buying a V.34 modem for ARA connections, be sure to have one at each end, and be sure the modem you're buying has a CCL (Communications Control Language) script for ARA. Many modems from PC-oriented companies don't include such a CCL, so you have to download the CCL from the vendor's BBS or do without. Having no CCL means you won't get maximum throughput, since the software won't

This slow conversion hasn't affected the majority of online subscribers. For the staples of traditional online interaction—sending E-mail and downloading small text files—speeds faster than 9.6 Kbps don't make much difference. But more people want to use the graphics-intensive interfaces the online services are putting up, and they want to download bulky multimedia clip files. For both, they need speedier throughput.

MCI Mail and CompuServe have been the most aggressive about upgrading to 14.4 Kbps, but America Online has redefined how online services need to think about throughput. America Online bought an Internet backbone builder, ANS, and is planning to use its fiber-optic

backbone to provide 28.8-Kbps connections in most major cities by mid-1995.

If you use America Online from a major city and make a habit of downloading big files, using 28.8-Kbps, V.34 modems will save you connect charges on file transfers. But most online-service users will get little benefit from the new modems and are better off waiting until they can count on the modem at the receiving end to be a V.34 modem, too.

**Internet** A few services provide V.34 connections for Internet access. One national provider with 28.8 Kbps is Northwest Nexus (206/455-3505), which says almost every major urban area will have at least one provider offering 28.8-Kbps access by the end of the year. Hav-



know about the peculiarities or capabilities of your modem.

**Fax** V.34 operates essentially at the same speed as the previous generation of Group III fax modems, so don't expect faster faxing.

### Limiting Factors

You need to consider a few equipment issues before you buy a V.34 modem.

**Serial Slowdowns** The most frequent barrier to 28.8-Kbps throughput is the Macintosh's serial-port architecture. While this is no limit at all for people who own Power Macintoshes, people with 680X0-based systems will find the serial port the most frequent problem. When the serial port on those Macs was designed, 9.6 Kbps was the fastest rate used, so Apple designed for that speed.

A complication is LocalTalk, because Apple's serial structure supports both serial ports via the same hardware. If the modem and a LocalTalk network are simultaneously using the Mac's serial ports, the Mac must juggle the two, rationing resources. The more nodes on the network, the more traffic the port is passing and the less attention the port can pay to modem activity, which means your modem is not getting the data it needs fast enough to handle 28.8 Kbps (or even 14.4 Kbps in some circumstances).

There are solutions to both squeezes. The lowest-tech fix is to physically dis-

connect the LocalTalk connector from your 680X0 Mac and shut down AppleShare during modem sessions. Or you can buy an add-on NuBus serial card with better-designed ports and a 68008 processor aboard to handle the work. One such product is the \$299 Hustler II from Creative Solutions (301/984-0262).

**CPU Bottlenecks** The Mac's CPU can also be a bottleneck, since it has to process the information being sent to and received from the modem. Because the 680X0 Mac was designed with 9.6 Kbps as a maximum, older Macs' processors can be overwhelmed by the V.34 data rate.

Opinion is divided on the minimum Mac needed for a V.34 modem; some experts say you need a 68030-based Mac or better, and others say you can get away with a 68020-based system. Macworld Lab's testing indicated that a non-networked Mac II lost only about 4 percent of its throughput connected at a maximum BBS rate of 57.6 Kbps compared with the throughput using a Power Mac 7100 under the same conditions. That result indicates that a 68020-based system without a LocalTalk connection could handle the work of a 28.8-Kbps connection. A 68000-based Classic, on the other hand, started losing data—and requiring retransmission—at any rate above 19.2 Kbps; and it lost 28 to 50 percent of throughput speed compared with a 7100.

**Setup Woes** You might think that

installing a modem involves nothing more than plugging it into your serial port, but if your modem is new or it's not from an industry leader, you have to help your software build an initialization string, a set of characters that instructs the modem to behave a certain way. Most telecommunications and fax software offers a set of strings to select from, but if there is no string for your particular modem, you must either accept a generic configuration, which may deprive you of some features you paid for, or consult the documentation and enter the string yourself.

Unfortunately, modem documentation continues to suffer poor quality for most products, even though the quality has been getting better. There are some positive signs, however: Logicode has a well-designed and clear installation guide.

### What to Look For

New modems usually go from state-of-the-art to commonplace in a few months, resulting in the new products' quickly becoming alike. But there's no guarantee that all the modems follow the same specifications. While standards like V.34 aim to assure that all modems are alike, most manufacturers try to outdo the standard with special tricks you can take advantage of—if you use just their product.

**The Heart of the Modem** A fundamental item in a modem is the chip set

## Who Offers V.34 Modems?

Company	Phone	Toll-Free Phone	Product	List Price	Chip-Set Maker	Bundled Communications Software	Bundled Fax Software
Archtek America Corporation	818/912-9800	none	2834A-M	\$309	AT&T	QuickLink II Fax	QuickLink II Fax
AT&T Paradyne	813/530-2000	800/482-3333	Comsphere 3820Plus	\$950	AT&T	none	none
Bay Connection	408/270-8070	800/475-8329	Spectra-Com E 288mx	\$199	AT&T	MicroPhone LT	Faxstf
Best Data Products	818/773-9600	800/632-2378	2834F/FX	\$399	Rockwell	QuickLink II Fax	QuickLink II Fax
Circuit Research Corporation	603/880-4000	800/447-4448	FlexFax Maxim	\$875	Rockwell	Javelin	4-Sight
E-Tech Research	408/988-8108	800/328-5538	Bullet 100E	\$499	AT&T	QuickLink II Fax	QuickLink II Fax
Hayes Microcomputer Products	404/441-1617	none	SmartModem Optima, 28.800 V.34/V.F.C. Fax	\$579	Rockwell	SmartCom II	none
Logicode Technology	805/388-9000	800/735-6442	Quicktel 2814XVM	\$299	Rockwell	QuickLink II	Delrina Fax Lite
MacProducts USA	none	800/347-8739	Magic V.34	\$199	Rockwell	SiTcomm	Delrina FaxPro
MaxTech Corporation	201/579-3630	800/936-7629	MaxTech XM288E (Mac)	\$219	Rockwell	MicroPhone LT	Delrina FaxPro
Motorola ISG	508/261-4000	800/487-1456	Lifestyle 28.8	\$345	Motorola	MacComCenter	MacComCenter
			Power 28.8	\$395	Motorola	MacComCenter	MacComCenter
			V.3400 Modem	\$895	Motorola	none	FaxTalk Plus
Multi-Tech Systems	612/785-3500	800/328-9717	MultiModem	\$749	AT&T	MacComCenter	MacComCenter
Practical Peripherals	805/497-4774	800/442-4774	MacClass 288MT II V.34	\$279	Rockwell	MacComCenter	MacComCenter
Prometheus	503/692-9600	800/477-3473	ProModem 28.8	\$249	Rockwell	Communicate Light	MaxFax
Supra Corporation	206/905-1410	800/727-8772	SupraFax Modem 288	\$250	Rockwell	MicroPhone LT	Faxcilitate 1.7.1
Telebit Corporation	508/441-2181	800/835-3248	FastBlazer 8840	\$1199	Telebit	none	none
US Robotics	708/676-7010	800/342-5877	Sportster Mac&Fax	\$359	US Robotics	MacComCenter	MacComCenter
Zoom Telephonics	617/423-1072	800/423-9477	V.34X Mac	\$329	Rockwell	MicroPhone LT	Faxstf
ZyXel Communications Corporation	714/693-0808	800/255-4101	Elite LED 2864	\$549	ZyXel	none	MaxFax with Voice



that controls the modem's hardware—it's essentially the modem's CPU. Just a handful of chip-set makers design, make, and sell chips to modem manufacturers. Which chip set a modem manufacturer chooses plays a key role in determining both performance and compatibility for the modem. Chip sets, particularly the first ones for a new standard like V.34, contain bugs. Modem manufacturers try to find and fix the bugs, which is why one company's modem using a particular chip set might work fine, while another company's modem has problems even though it uses the same chip set.

In the past, bugs in the chip sets were difficult to fix, but now many of the mid- and high-price modems have a flash ROM that allows software upgrades. Of course, the best modem is one based on a chip set that isn't buggy in the first place. Unfortunately, there's no way to know whether a chip set is buggy until you use it, and most modem vendors rush to get new-technology modems to market before their competitors, so the bug-discovery time is limited. Historically, the popular Rockwell chips are known for having bugs that must be fixed by modem manufacturers. And several modem manufacturers told *Macworld* they expected the same experience for V.34 chip sets.

It's also important to understand that there are vital components besides the chip set that modem makers buy from

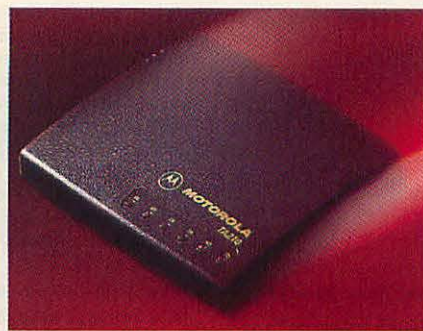
other vendors, and there are items modem makers make themselves, with varying degrees of investment and levels of quality control. While the basic chip set is the single strongest indicator of stability, a vendor can fix the bugs of the worst provider and offer a high-quality modem, or combine cheap, low-quality components with a high-quality chip set and offer a mediocre modem.

To evaluate differences between models, Macworld Lab performed a range of tests to judge if the chip set made a difference. Macworld Lab's testing included connection and other performance testing of equipment with each of the three leading chip sets: AT&T, Motorola, and Rockwell. The benchmarks in "What Speed Do V.34 Modems Deliver?" show the results. We also found that two modems with identical chip sets could communicate 0.5 percent to 11 percent faster than could two modems based on different chip sets.

This effect was most marked with files that were already compressed with PKZip or Aladdin Systems' StuffIt and was insignificant in work with uncompressed files. This is true because the V.34 standard is explicit about how to handle uncompressed text files, so different models that meet the standard behave identically with uncompressed text. The standard does not direct how to optimize throughput of compressed data, however, so each vendor has implemented its own scheme; because each implementation is different, a modem works best when talking to an identical modem.

Macworld Lab was also unable to initiate a session between a V.34 modem powered by the Motorola chip set and another powered with the Hayes implementation of the Rockwell chip set, indicating, again, that a modem standard is something vendors tinker with.

**What about V.Fast?** Before the V.34 standard was finalized, some modem makers sold 28.8-Kbps modems using a de facto standard variously called V.FC and V.Fast. Essentially, V.Fast implemented the V.34 standard the way the modem companies *hoped* it would turn out. To a large degree, they knew what was going to be in the standard, and they were able to incorporate it. But they didn't predict the standard perfectly, so when a V.34 and a V.Fast modem communicate, the modems can't agree to communicate via a V.34 connection (since that standard wasn't implemented in the V.Fast). If the V.34 modem also supports V.Fast, they can communicate at 28.8 Kbps via a V.Fast connection. Otherwise, they'll settle on a 14.4-Kbps connection. Most V.Fast modems came with an



**Next Modem Wave** To beat V.34 performance, people must switch from standard phone connections to ISDN connections and use an ISDN modem, like this Motorola unit.

option to upgrade to V.34; if you own an upgradable V.Fast modem, be sure to get the upgrade.

### Next-Generation Speed

Although very fast, V.34 technology hits the ceiling of what's possible (within the laws of physics) using the transmission of sound through telephone wires. So is 28.8 Kbps the end of the line? No—not if you change the type of telephone service you use. The technology that should break the 28.8-Kbps limit is ISDN (Integrated Services Digital Network), a leading-edge connection technology provided in some locales since the early 1980s. ISDN operates over the ubiquitous telephone lines that come into your house or workplace, but instead of doing the modem trick (turning digital data into analog sound waves at one end, and back to digital data at the other), ISDN simply transmits digital bits without the overhead of conversion at each end. ISDN carries 128 Kbps without compression, far more than a V.34 modem's 28.8 Kbps.

ISDN makes most sense for users who exchange large graphics files, distribute full-motion video, or need speedy remote access to LANs. America Online and some Internet providers, such as Menlo Park, California-based Internex (415/473-3060), now offer ISDN connections.

But unless you're very skilled with telephony, you'll require several hundred dollars' worth of help—from either your local phone company or a consultant—to choose and install the right equipment. Moreover, the chance of finding ISDN available in distant suburbs or rural areas is unlikely.

Most buyers will opt for the basic rate, or BRI, line. It has two 64-Kbps B (bearer) channels, each able to carry either voice or data, and one 16-Kbps D (delta) channel for overhead functions.

ISDN installation costs run from \$75 to \$750, averaging \$150. The service itself typically carries a \$50 monthly charge

Mac Cable Included	CCL Script Included (in box/through BBS)	Uses Flash ROM
yes	no/no	yes
no	no/yes	yes
yes	no/yes	yes
no	no/yes	no
yes	yes/yes	yes
no	no/yes	yes
yes	no/yes	no
yes	yes/yes	no
no	no/yes	no
yes	no/yes	no
yes	no/yes	yes
no	no/yes	no
yes	no/yes	no
yes	no/yes	yes
no	no/yes	yes
yes	no/yes	no
yes	yes/yes	no
yes	no/no	yes



# What Speed Do V.34 Modems Deliver?

To communicate at its top speed of 28.8 Kbps, a V.34 modem needs to have a Mac that can process a high volume of data, a serial (modem) port that can handle high throughput, and a telephone connection that can deliver information at high speed with few or no line-noise errors. To gauge what users will actually experience with a V.34 modem, Macworld Lab tested several models using different chip sets with several Macs over real telephone connections and via a simulator.

We tested compressed and uncompressed files to gauge the efficiency of the modems' built-in compression features. Compression lets modems achieve a higher throughput than their standard data

rate: by compressing data to half its size and delivering it at 28.8 Kbps, a V.34 modem can in effect transfer data at 57.6 Kbps, for example. However, a modem will reduce its transmission rate if needed to ensure accurate data transfer over phone lines that can't handle the maximum rate or when communicating with a Mac or other modem that does not support the 28.8-Kbps rate. For Macs that don't support 28.8-Kbps rates, Creative Solutions offers the NuBus-based Hustler card, which is a popular option among BBS operators to ensure high-speed data transfer. However, the Mac's other limitations, such as CPU and bus speed, still affect Hustler performance somewhat, as the results show.

## By Mac Model

Shorter bars are better.

These tests show the file-transfer times between a Mac-based BBS and different Mac models over dial-up telephone connections.

**File-Transfer Rate** (in seconds)

	AT 57.6 Kbps		AT 38.4 Kbps		AT 19.2 Kbps	
	Graphics File (2418K)	Text File (523K)	Graphics File (2418K)	Text File (523K)	Graphics File (2418K)	Text File (523K)
Power Mac 7100	560	100	676	146	1337	291
Centris 650 w/Hustler card*	553	63	*	*	*	*
Mac II w/Hustler card*	581	102	*	*	*	*
Mac II	581	103	690	150	1342	292
LC	581	104	689	150	1345	296
Classic	916	199	945	203	1344	308

\*We tested Hustler card transfers only at 57.6 Kbps.

## By Chip Set

Rate to transfer file in bits per second.  
Longer bars are better.

These tests show the capabilities of modems based on the major V.34 chip sets. Not all modems using a particular chip set will show the exact same results, but these differences are representative of most modems using a particular chip set. Throughput shows the average rate achieved, while Connect Rate shows how often modems could achieve the 28.8-Kbps rate over the range of typical telephone connection quality levels.

**Average Throughput** (in bps)

	MIXED NETWORKS		MODERN NETWORK (digital)		OLDER NETWORK (analog)		Connect Rate (percentage of 28.8-Kbps connections)	
	Text File (327K)	Archive File (524K)	Text File (327K)	Archive File (524K)	Text File (327K)	Archive File (524K)	Text	Archive
Motorola	80.1	33.0	82.4	33.9	62.2	25.7	85%	87%
Rockwell	84.7	32.3	82.4	34.6	73.5	31.7	91%	85%
AT&T	66.5	26.0	80.9	33.7	62.2	19.8	41%	16%

## BEHIND OUR TESTS

To test transfer rates, Macworld Lab set up a FirstClass BBS on a Centris 650 with a Hustler card and an Archtec SmartLink 2834A modem installed to ensure top performance for the BBS server. We then dialed in to the server from several Macs and transferred files. To test throughput, Macworld Lab used a telephone-network simulator from P.T.T. that is designed to simulate the phone-line conditions of 95 percent of U.S. lines. Using the Telecommunications Industry Association's TSB38A test suite, we then measured the

throughput for file transfer over those simulated lines. We also broke out the results for modern (digital) lines and older (analog) lines so users can gauge the performance of different chip sets in the two likeliest ranges of line conditions. For the Motorola chip set we used a Motorola V.3400, for the Rockwell chip set we used the Hayes SmartModem Optima, and for the AT&T chip set we used the E-Tech Bullet 100E.—Macworld Lab testing supervised by Matt Clark

plus connect charges of 4 cents for the first minute and 3 cents for each additional minute. Figure anywhere from \$500 to \$1000 for the Mac interface card and other related hardware. (For more on ISDN, see "ISDN Heats Up," in *Net-works* news, *Macworld*, April 1995.)

If you want to send digital data from an ISDN line to other people, the recipients must have either a digital connection or an interface. Some digital modems let you connect to both digital and analog lines; examples are modems from Access-Works (908/888-4570) and Motorola (205/430-8000).

## The Last Word

Still, ISDN modems are a bit off in the future for most people. If you use a modem for anything more strenuous than E-mail, sooner or later you'll benefit by upgrading to V.34. If you're an America

Online user, an Internet enthusiast on a SLIP or PPP connection, or a person responsible for supporting remote network routing or other WAN applications, the time to upgrade is now. If you're buying two or more modems that will mostly communicate with each other, it's best to buy all the modems from the same manufacturer so you can reap the benefits of identical features and fastest possible modem-to-modem data rates.

If you use applications for which connecting at the highest throughput rate is always critical, avoid the lowest-price modems. To develop a modem that performs as fast as the Motorola-based modem in our testing, a vendor needs to use high-quality components throughout and normally can't make a profit in the low-end consumer market.

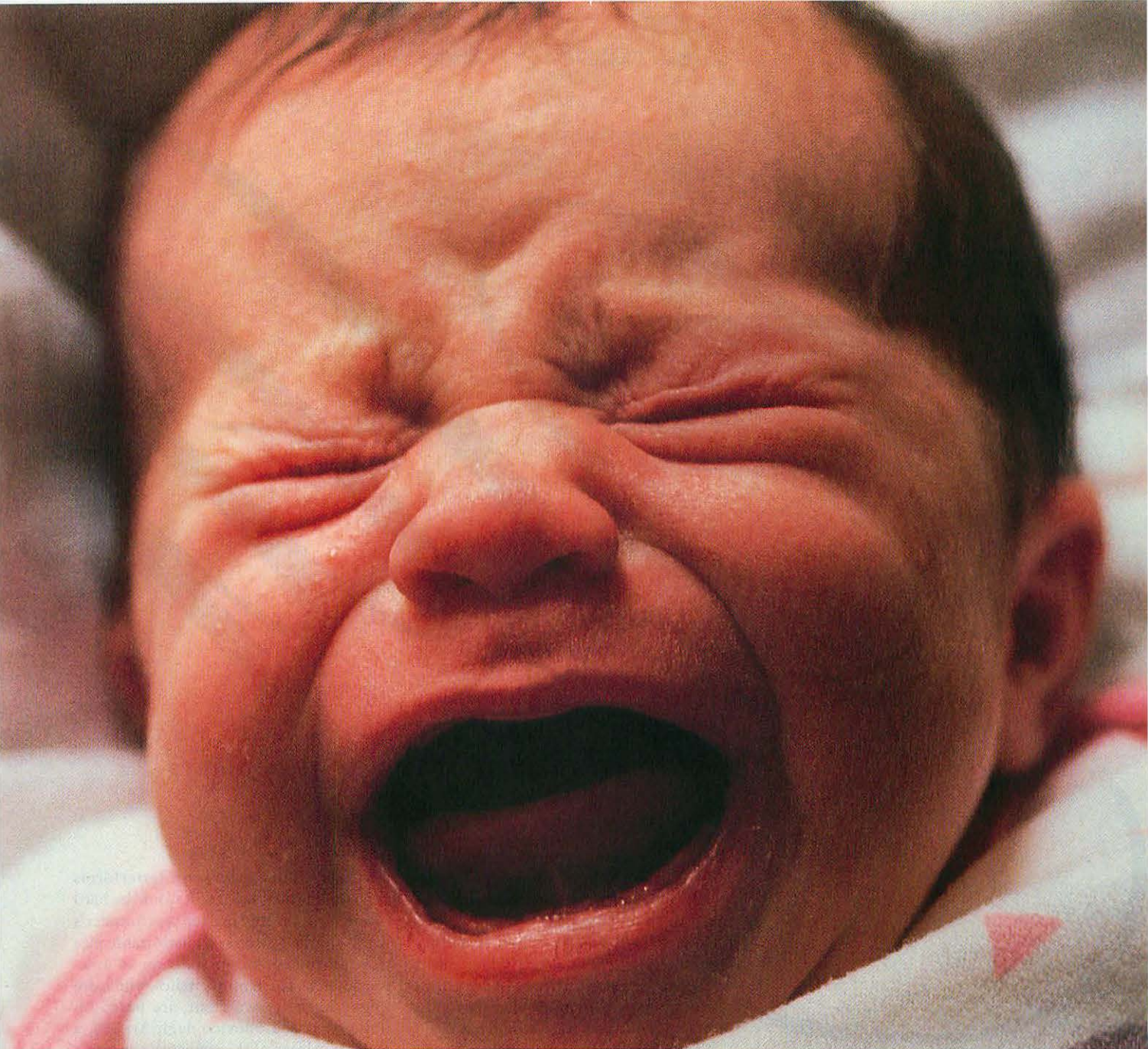
If you choose to buy before the end of this year and you want your equipment

to stay state-of-the-art, choose a model with flash ROM so you can upgrade by downloading new code from a manufacturer's BBS. It's certain that bugs will be found in implementations and that vendors will write new code. It's much more convenient to upgrade through flash ROM than by sending your modem back for a chip-set replacement.

It's too soon to pick the best V.34 modem—only time will tell which modem makers produce the best implementations. But it's clear that V.34 modems will benefit a great many people—some now, and many more later—and vendors are poised to deliver them at affordable prices. **m**

JEFF ANGUS has written extensively about modem technologies for several magazines, including *Macworld's* sister publications *PC World* and *InfoWorld*.





## "But They Said My New Macintosh Would Run Windows Applications."

It's a crying shame. You thought your new Mac could run Windows applications right out of the box, but it doesn't. Well, dry your eyes, because even though they forgot to sell you the software you need, you're not out of luck. Just get SoftWindows.

SoftWindows lets you run the standard mode Windows applications you need at work or at home. With a couple of clicks, you can access databases in dBase. Edit spreadsheets from Excel or Lotus 1-2-3. Exchange documents, presentations, even access your company's e-mail, printers and networks.



Includes Microsoft  
Windows 3.1  
and MS-DOS 6.21

Over 150,000 Mac, Power Mac and Performa users already run Windows applications with SoftWindows. So can you. Just look for our "Try-It" CD-ROM at your favorite retailer to test drive SoftWindows on your Mac. You'll see. It's as easy as taking candy from a baby.

**See your local dealer or call 1-800-848-7677.**



**SoftWindows**

*Run Windows On Mac*

**INSIGNIA  
SOLUTIONS**

© 1995 Insignia Solutions Inc., Mountain View, CA • Phone (415) 335-7100 • Fax (415) 335-7105. Insignia and Insignia Solutions are registered trademarks of Insignia Solutions Inc. SoftWindows is a trademark used under license. Windows is a trademark and MS-DOS is a registered trademark of Microsoft Corporation. All other trademarks are the property of their respective holders.

**Circle 68 on reader service card**



# T Y P E

The latest crop of typefaces shows style,  
energy, and pizzazz. Macworld  
picks some first-class newcomers.

It wasn't easy picking a handful of noteworthy new typefaces to write about. Not that I'm complaining, mind you—I love leafing through type catalogs, installing dozens of new fonts, and fading out a laser-printer toner cartridge or two from printing samples. It's just that there are so many good faces to choose from.

With hundreds of new faces released in the last year, where does one begin? I called a number of digital type foundries and asked which of their new faces they were most enthusiastic about. I then surveyed several type experts and asked them what they would choose as exceptional, new faces. Finally, I studied this information and came up with my own list of faces that I think are excellent examples of the following styles: text, handwriting, script, display, and a couple of interesting faces that escape conventional classification.

## Text

**Adobe Jenson** This new text face has roots in the fifteenth century; it was inspired by a beautiful Venetian Roman face created in 1470 (about 20 years after the advent of movable type) by Nicolas Jenson. It may seem odd that typographic fashion has changed so little in the last 500 years, but look at the pleasing pro-

portions of Adobe Jenson's letterforms and you'll probably agree it would be hard to improve on this master typefounder's work. Adobe Jenson is a comfortable face to read; the eye never stalls on an awkward letter. The family's italics, which are lovely in their own right, are based on italic faces of Ludovico degli Arrighi, a Roman printer of the sixteenth century.

Font designer Robert Slimbach used photographic enlargements of Jenson's and Arrighi's books to design his version of Jenson. While Nicolas Jenson cut only one size of type, Adobe Jenson uses Multiple Master technology to adjust optical size so it's appropriate for different point sizes. Adobe Jenson also provides a design axis for weight, allowing you to generate faces from light to bold. The family includes Roman, italic, and swash italic styles, as well as Roman and italic expert sets with small caps, fractions, superior and inferior numerals, and extra ligatures.

Adobe Jenson, which I saw in prerelease form, is one of the finest digital typefaces I've seen. This revival would be an excellent choice for setting a book; its classical proportions and even texture make it easy to read—even in lengthy passages—and you can tailor weights and optical sizes to your printing needs.







by Erfert Fenton

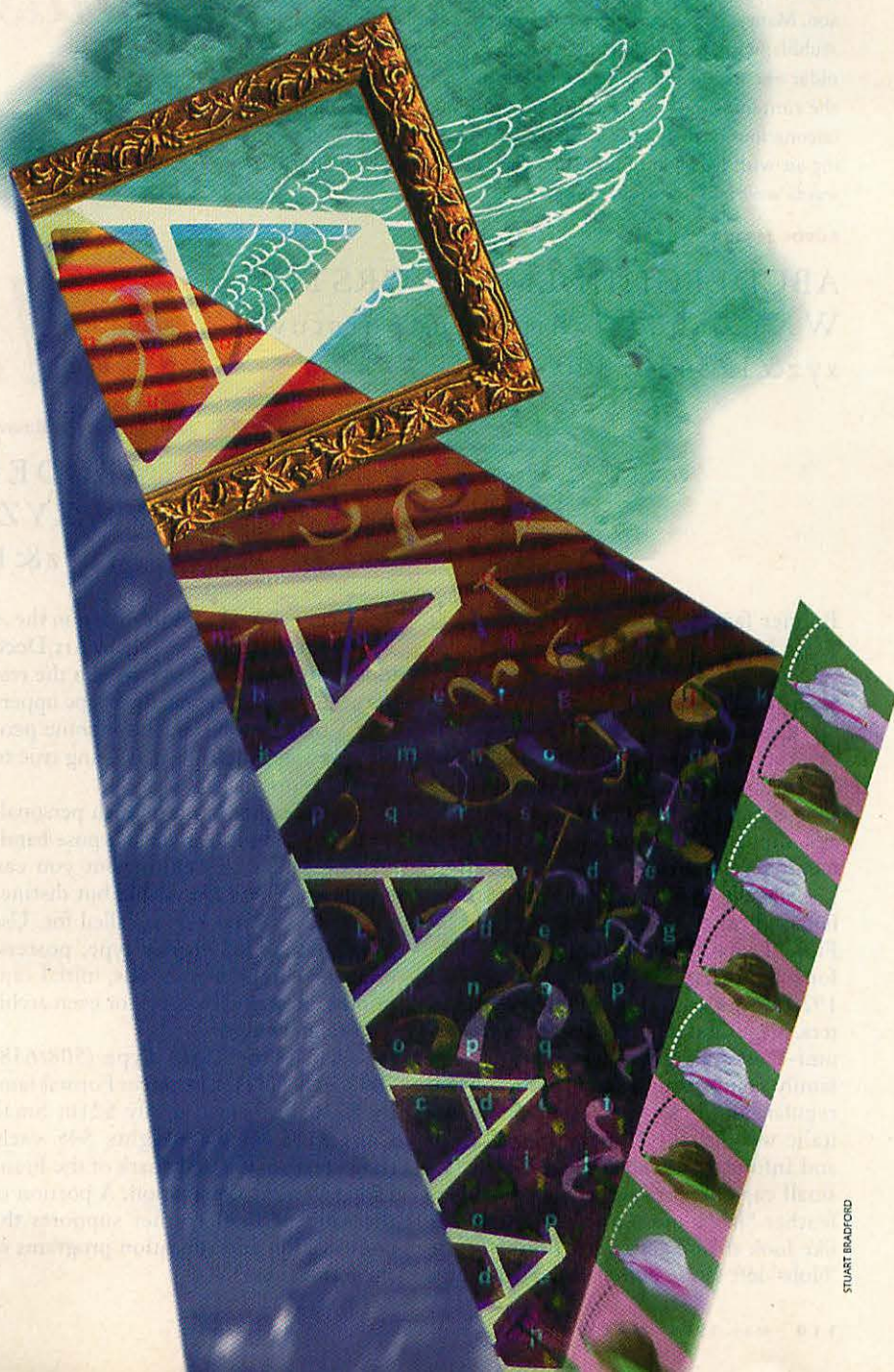
Jenson will be available later in 1995. Distributor: Adobe Systems (415/961-4400) and other vendors of the Adobe Type Library. List price: Adobe has yet to determine this.

**Monotype Bulmer** Another revival is Monotype's Bulmer family. Monotype Bulmer is based on the foundry's 1930 hot-metal version of Bulmer, which itself was based on types cut by William Martin in 1790 and named after William Bulmer, a renowned English book printer in the late-eighteenth century.

The digital Bulmer was drawn by Ron Carpenter, who studied Bulmer's printed works and surviving metal versions. Bold and semibold weights, an expert set, alternative characters, and display fonts were added to the original design, for a total of 28 fonts. A QuickDraw GX upgrade will be offered free to registered users (in the happy event that any applications ever support GX fonts).

Monotype Bulmer's even color and compact look make it a good choice for lengthy passages of text such as books, reports, catalogs, and the like. It's a strong, no-nonsense face that conveys a sense of solidity.

Distributor: Monotype Typography (312/855-1440). List price: Monotype





# Chapter 19

*A pleasant day, with  
an unpleasant Termination*

**T**he birds, who, happily for their own peace of mind and personal comfort, were in blissful ignorance of the preparations which had been making to astonish them, on the first of September, hailed it no doubt, as one of the pleasantest mornings they had seen that season. Many a young partridge who strutted complacently among the stubble, with all the finicking coxcombry of youth, and many an older one who watched his levity out of his little round eye, with the contemptuous air of a bird of wisdom and experience, alike unconscious of their approaching doom, basked in the fresh morning air with lively and blithesome feelings, and a few hours afterwards were laid low upon the earth.

Adobe Jensen

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
WXYZabcdefghijklmnopqrstuvwxyz  
xyz&1234567890

Bulmer family (ten weights and styles) \$250; Monotype Bulmer Expert Set \$70.

## Handwriting

**Eaglefeather** Whether you know it or not, you've probably seen David Siegel's work. His Tekton handwriting font is immensely popular, appearing on ads, menus, brochures, and anywhere a handwritten look is desired.

Siegel's latest typeface, Eaglefeather, is based on the hand lettering used by Frank Lloyd Wright on his design plans for a Southern California estate around 1920. From an initial sample of 19 letters, Siegel and type designer Carol Toriumi-Lawrence created a 15-font type family comprising three weights—light, regular, and bold—and complementary italic weights for Eaglefeather Formal and Informal, as well as three weights of small caps. According to Siegel, Eaglefeather "has a more formal, draftsman-like look than Tekton, yet preserves the 'blobs' left at the end of each stroke by a

technical pen." The double bars on the *A* and *H* give the face a stylish, Art Deco look, but they do not overwhelm the rest of the letters. The escalator-shape uppercase *S* may be a bit much for some people, but Siegel defends it as being true to the face's origins.

Eaglefeather has too much personality to be used as a general-purpose handwriting face like Tekton, but you can employ it where a readable but distinctive hand-lettered look is called for. Use Eaglefeather for display type, posters, notes or letters, menus, ads, initial caps or other design elements—or even architectural drawings.

Distributor: Agfa Type (508/658-5600, ext. 2131). List price: Formal family \$210; Informal family \$210; Small Caps \$105; single weights \$45 each. (Eaglefeather is a trademark of the Frank Lloyd Wright Foundation. A portion of the sales of Eaglefeather supports the conservation and education programs of the foundation.)

## Oberon

What thou see'st when

thou dost wake,

[ *Squeezes the flower on  
TITANIA'S eyelids* ]

Do it for thy true-love  
take;

Love and languish for  
his sake:

Be it ounce, or cat,  
or bear,

Pard, or boar with  
bristled hair,

In thy eye that shall appear  
When thou wakest,

it is thy dear:

Wake when some vile thing  
is near.

Monotype Bulmer

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
VWXYZabcdefghijklmnopqrstuvwxyz  
vwxyz&1234567890

## Script

**Sloop** With 20 years of experience as a calligrapher, it's no surprise that Richard Lipton was able to invest Sloop with a fluidity that evokes pen strokes, not pixels. Inspired by the hand-lettering style of calligrapher Raphael Boguslav, the face's swirls and arabesques are a delight to behold. Sloop is not a single font but a set of three related fonts—Sloop One, Two, and Three—that offer different degrees of ornamentation. Sloop One's lowercase letters have relatively short and straight ascenders and descenders; Two's ascenders and descenders are longer and more curved; and Three's are longer still, which results in many overlapping curves. While you can simply type a line in any of the three variants, for best results you'll want to combine letters from each font (a line set in Sloop Three, for example, might look too busy, with a jumble of overlapping ascenders and descenders).

Setting type in Sloop requires work; you must experiment to see which com-



# EAGLE

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
Zabcdefghijklmnopqrstuvwxyz&123  
4567890

# FEATHER

Eaglefeather

Prairie Style  
Prairie Style  
Prairie Style  
Prairie Style  
Prairie Style  
Prairie Style  
Prairie Style  
Prairie Style

*My Little Gigabyte*

*My Little Gigabyte*

*My Little Gigabyte*

*My Little Gigabyte*

Sloop

ABCDEFGHIJKLMNO  
PQRSTUVWXYZabcdefghijklmnopqrstuvwxyz  
ijklmnopqrstuvwxyz01234567890

binations of Sloop One, Two, and Three look best, adjust kerning between fonts, and try out alternate characters. However, the results should be worth the effort.

Sloop is impractical for lengthy publications, but it's ideal for book covers, invitations, announcements—anything meant to convey taste and elegance.

Distributors: The Font Bureau (617/423-8770); FontHaus (203/367-1993); FontShop (800/897-3872). List price: One, Two, and Three \$105.

## Display

**Nueva** Nueva is a new Multiple Master typeface from Carol Twombly, the versatile Adobe type designer who is perhaps best known for her incomparable—and nearly ubiquitous—Lithos. Twombly began making sketches for Nueva in 1988, envisioning a complementary lowercase for her Charlemagne titling face, then resumed work on it years later, when it evolved into a contemporary, almost whimsical design.

Since Nueva is a Multiple Master design, its personality varies depending on the combination of weight and width you specify, evoking anything from Latin to Art Nouveau to 1950s lettering styles.

While it's basically a lively face, with arches springing from tapering stems, Nueva has an underlying harmony that makes it pretty enough to use for setting, say, a short poem. Nueva is meant to be set at 16-point or larger, making it suitable for display applications such as book jackets, posters, greeting cards, and so on.

Distributors: Adobe Systems (415/961-4400) and other vendors of the Adobe Type Library. List price: \$105; Adobe Type on Call \$69.

## Nontraditional Type

**Proforma** Utilitarian yet attractive, the 24-member Proforma family was originally designed in the late 1980s for a Danish manufacturer of computerized forms systems. The Font Bureau began selling it in 1994. Proforma is tailored for

use in forms and tables; its narrow characters are ideal for fitting copy into small spaces. Designer Petr van Blokland describes Proforma as a “heavy-duty typeface”: its squarish serifs and robust stem weights enable it to hold up even at small sizes under poor printing conditions, such as inferior-quality paper. Yet for all its practicality, Proforma is pleasing to the eye. (Proforma was recently nominated for the Rotterdam Design Award.) With its many styles and weights—from ultra-light to bold—it could easily be used as a corporation's in-house typeface, appearing in forms, reports, presentations, promotional materials, brochures, and more.

Distributor: The Font Bureau (617/423-8770). List price: \$40 per style or weight; \$35 per font for three to five styles; \$30 per font for six or more styles. (Prices listed are for single-user license; contact The Font Bureau regarding pricing for multiuser or site licenses.)

**Marcus Aurelius** While berated by type cognoscenti as “grunge fonts,” the



efghij

Nueva

aaa aaa aaa

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
 Zabcdefghijklmnopqrstuvwxyz  
 &1234567890



Marcus Aurelius

type illiterati (not to mention a large number of innovative professional designers) seem to love the new crop of wacky fonts from small upstarts such as the Chicago-based T-26. The folks at T-26 don't seem too concerned about criticism from the establishment; their fonts have names like Scrawl, Garbage, and Out-haus. Although I've been known to go into curmudgeonly tirades myself while trying to read some of the hip new 'zines that favor the newly fashionable faces, I enjoy using them for my own projects. I just used Mark Allen's Marcus Aurelius to create a business card, for example, and I'm very pleased with the results.

Legibility is not the aim of Marcus Aurelius and its ilk; getting noticed is. You can go out on a limb and use T-26

fonts in your designs, or you can play it safe and use Adobe's Lithos, a sublime, timeless face that has become a victim of its own appeal and trickled down to pizza-parlor signs and potato-chip bags. Use Marcus Aurelius for anything you want . . . well, almost anything—do me a favor and don't set an entire article in it.

Distributor: T-26 (312/670-8973). List price: \$39.

#### Finding Your Own Faces

Good type abounds; the difficulty is choosing the right face for the right purpose. I've touched on merely a cross section of fonts for a variety of uses, thereby leaving out many a good foundry and designer.

If this introduction piqued your curiosity, you might want to do your own

## Dishtowels 'n' More, Inc.

### QUARTERLY REPORT

4th Quarter 1995

Dear Stockholder:

We are very pleased to inform you that 1995 has been a banner year for the dishtowel industry. Sales increased by 23% in the first quarter alone. And the vigorous public-awareness campaign by the President's Council on Kitchen Hygiene has helped boost our company's sales to a whopping 234,698,147 units this fiscal year! I think you will share my enthusiasm when you read the attached report.

Robert Grimes

President, D'n'M, Inc.

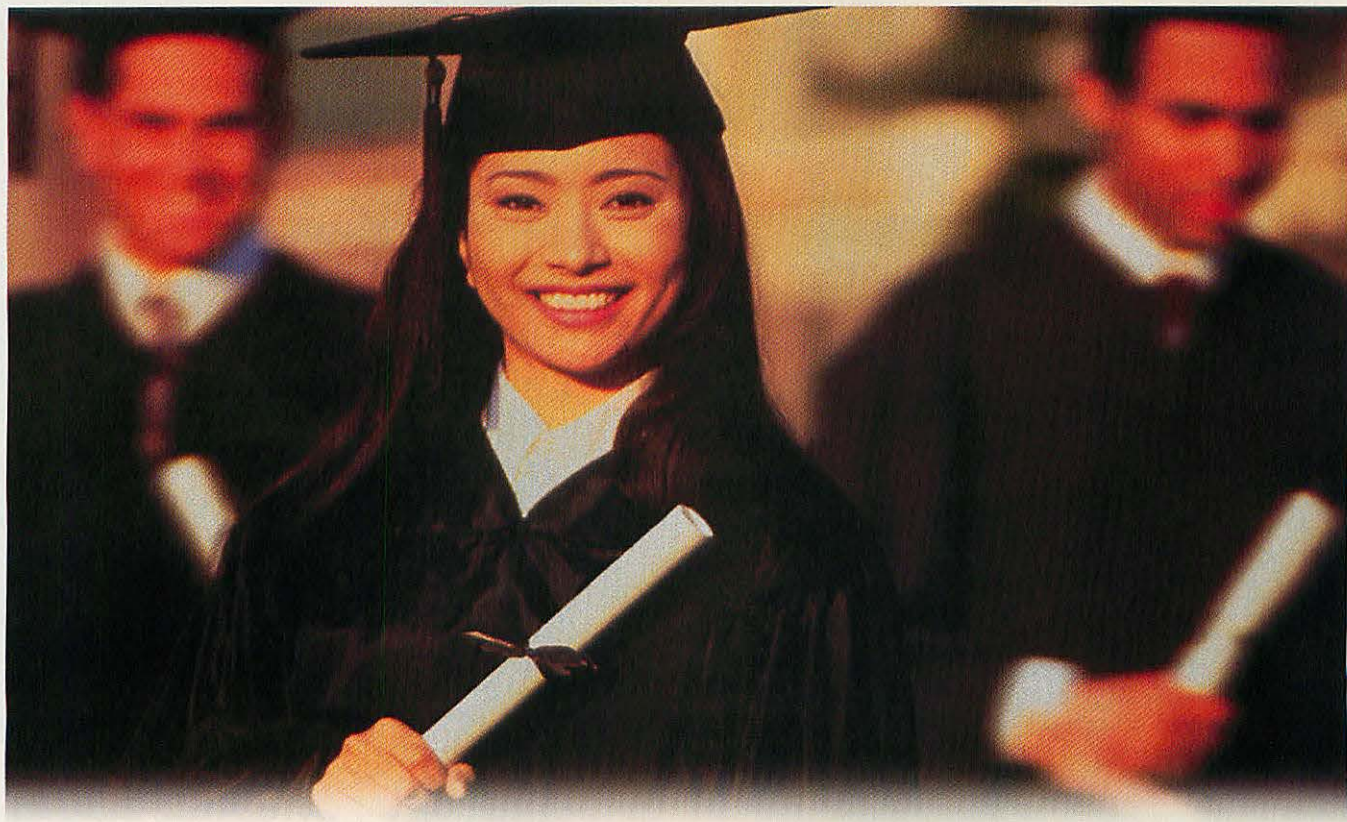
### Proforma

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
 WXYZabcdefghijklmnopqrstuvwxyz  
 vwxyz&1234567890

research. For the latest information on type, you can purchase ITC's Directory of New Typefaces (212/371-0699, \$250 per year), a catalog of ITC-approved faces that includes type samples, notes on designers, and buying information for faces from more than two dozen foundries. You could also benefit from checking out some of the small type-design shops such as Alphabets (800/326-8973), Carter & Cone Type (617/576-0398), Galapagos Design Group (617/497-5626), or Stone Type Foundry (415/324-1870). With a little determination, you're likely to find just the gem you're looking for. **m**

Contributing editor ERFERT FENTON is currently working on the third edition of *The Macintosh Font Book* (Peachpit Press).





# WHEN

Hey, if you weren't intelligent, you wouldn't have that important job of yours.  
And it's always good to have a color printer that can keep up with your ideas.

# SMARTER

That's where the QMS® *magicolor* Laser Printer comes in.  
It has the brains to keep you and your entire workgroup ahead of the competition.

# ISN'T SMART

So what's that mean to you? Longer weekends, for one.  
Plus some pats on the back for a job well done.

# ENOUGH.

To put this great combination of your intelligence and the QMS *magicolor*™ Laser Printer together,  
do the smart thing. Call us today at 800 392-7559 Dept. 5022.



**Outperform The Very Best.**



For service on QMS or other products, call 800 762-8894 (U.S.) • Q-Fax 800 633-7213 • Canada 800 263-5508

QMS, the QMS logo and *magicolor* are trademarks or registered trademarks of QMS, Inc. One Magnum Pass, Mobile, AL 36618, 334 633-4300.



Representatives from three of the leading tape mechanism types: Optima Technology MiniPak F8000DAT (DDS-2), Tecmar's DataVault 2000 (DDS-1), and Club Mac's Exabyte 8505XL (8mm).





# Successful Workgroup Backup

**T**

he ideal backup solution would bring angels down from on high every night to copy all of your data with no human intervention. You could rest easy, knowing that Providence had you covered.

Unfortunately, in the real world you need to do it yourself. But take heart; with the right preparation, you can create and implement a backup strategy that will be easy to use and will protect your data from the cold, cruel world.

Effective backups start with solid planning. Consider how much storage capacity

**A**  
GOOD PLAN  
AND A  
GOOD TAPE DRIVE  
ARE KEY.  
MACWORLD LAB  
HELPS  
YOU PICK BOTH.

**by Tom Negrino**

you'll need; how fast your backup device must be; which computers need to be backed up, and how often; and the ease of setup for your backup software. You also have to consider human factors. It seems that people can always find reasons to skip backing up, so come up with a plan that overcomes inertia and gets the job done.

For most companies, tape backup makes the most sense from a capacity and cost standpoint. To help you devise an effective backup strategy, Macworld Lab tested the leading tape-drive mechanisms and backup software for speed and ease of use. We explain which mechanisms fit each backup need and pass on tips that will help you to avoid common pitfalls.

## Building a Strategy

Start with the basics. First determine which computers in your organization must be backed up. That's easy: all of them. Then prioritize your Macs to ensure that the most important machines get the most attention. Iden-



tify the machines that need to be backed up every day to protect your business. File and E-mail servers are the obvious choices, but don't forget the bookkeeper's Mac, the sales manager's Mac, and if you're in a graphics business, the Macs in the art department. And don't overlook the boss's computer.

Inventory each computer, noting its name, the size of its hard drive(s), what kind of network (LocalTalk or Ethernet) it is attached to, the name of its network zone, and the machine's physical location. Especially in larger companies, actually go and see every computer; you don't want to end up backing up a computer that is on your network zone but is physically located in a far-off location. Imagine the phone charges if you tried to back up a company server in Australia.

With a complete computer inventory, you'll be able to figure out how much backup capacity you require. Add up the size of each hard drive. Take the total, and multiply it by 1.5, as a prudent estimate of future growth. The result is your *backup-capacity requirement*.

Next you need to figure out how long a full backup will take. Take the backup-capacity requirement and multiply it by 1.5, to account for the extra data sent over the network when your backup software verifies the backed-up data. This figure is called the *total data transmitted*. Divide this figure by the network-throughput number to get the total number of hours needed to complete your backup.

For backing up one computer, speed may be a critical concern—particularly if you back up often or do so during working hours. For network backup, the equation changes. LocalTalk throughput is typically about 1MB per minute (MBpm). If you're using Ethernet, the estimate is a bit more involved. Macworld Lab found that the speed of the Mac you're using makes a big difference in Ethernet throughput, with a Power Macintosh 7100/66 transferring data almost three times as fast as a Mac IIci (12 MBpm versus 4.5 MBpm). For a mix of fast and slow Macs on a network, use an estimate of 10 MBpm to 15 MBpm. (Remember, however, to tell users to unmount any external drive that is not being backed up. Mounted volumes can slow network backup due to AppleTalk polling.)

When connected via SCSI, nearly all the mechanisms we tested easily exceeded the speed of an Ethernet network. So for network backup consider capacity as key. Make sure that the mechanism you select will handle all the data you have to back up without changing tapes, so that the backup software can handle the process automatically. Let's say you have

20 Macs to back up, each with an 80MB drive, plus a 2GB file server. With verification, that's 5.4GB of data passing over the network, and at Ethernet speeds, you'll need up to 9 hours to complete a full backup.

You can speed backup time considerably by connecting the tape drive directly to the file server, which usually has the majority of data that needs to be backed up. That machine will back up at SCSI



APS's prototype based on a superfast DLT mechanism.

speeds—up to 30 MBpm for a tape drive based on a DDS-2 DAT mechanism (the fastest DAT we tested)—100 minutes for the entire server. This makes DDS-2 an appealing choice for small-to-medium-size networks. With the tape drive directly on the file server, the sample network noted above would take roughly 5.5 hours to back up. (But don't hook up your tape drive to your mail server. During backup it would bog down mail delivery.)

After doing the research and the arithmetic, you have the basic information to make an informed decision on which class of tape-backup mechanism to buy for a full, unattended backup. Now move to the next step.

### Sizing Up Your Choices

Tape drives hold at least 1GB of data—enough for most single users and many small workgroups—and you can find tape units that handle up to 100GB. (For modest backup needs, consider a removable-cartridge drive or regular hard drive; see the sidebar "Backup Alternatives.")

Many vendors sell drives, but only a handful of manufacturers build them. Resellers buy a mechanism and case and add backup software (in nearly all instances Retrospect, which is \$249 if purchased separately from Dantz Development Corporation, 510/253-3000). Macworld Lab tested representative drives from resellers of the leading DC2000, DAT, 8mm, and DLT drive mechanisms. We also tested network-

backup software for speed, ease of use, and reliability.

To discover the raw speed of the mechanisms, Macworld Lab tested them in single-user mode using Retrospect (see the test results, "Tale of the Tape"). We backed up and restored a nearly 200MB mix of small files, and a 423.5MB QuickTime movie. For almost all mechanisms, we saw only a small difference in performance between backup and restore.

Any product from any vendor should perform nearly the same as the mechanism it is based on (see the table, "Tape Options at a Glance"). However, each manufacturer makes a number of versions of each mechanism, which may vary in performance. In the DDS-1 and DDS-DC categories, those variations were minimal. But in the DDS-2 category, differences between versions were up to 8MB per minute, depending on the operation. For top speed, look for a top-ranked version of that mechanism.

Remember also that a faster Mac will improve performance. We spot-checked the fastest DDS-2-based drive on a Power Mac 8100/110; it performed substantially better than on the Centris 650 for small-file backup and restore.

### Mechanism Options

The choices for drive mechanisms appear below in increasing order of capacity.

**DC2000** The DC2000 minicartridge was the first tape-backup format for the Mac, but the DC2000 has been moribund for several years due to slow speed and limited capacity. A new generation of DC2000 drives has revived the format; Exabyte is shipping a fast, 1GB unit, and other manufacturers are expected to follow suit.

With average transfer rates better than 25 MBpm, the Exabyte DC2000 is the fastest shipping unit tested; that's a surprise, considering the sluggish performance of earlier versions of this mechanism. These new drives are expected to fill the void on the low-price end of the market, with street prices between \$450 and \$650. Exabyte also has a unit with hardware compression, rated at 2GB capacity (not tested for this article).

**DAT** The most popular tape format for the Mac today is DAT. Fast and capa-



cious, DAT was developed from the audiophile digital audiotape format. DAT drives come in several different flavors. The basic unit is known as Digital Data Storage-1 (DDS-1), and it holds 2GB of data on a 90-meter tape that fits easily in the palm of your hand. The DDS-DC version adds hardware-based data compression and fits up to 4GB on the same 90m tape. The new high-end DAT standard, DDS-2, increases capacity by using longer (120m) tapes. With their built-in hardware compression, DDS-2 drives pack up to 8GB on a 120m tape.

According to our tests, DDS-1 backs up at about 10 MBpm; DDS-DC drives clock in at about 12 MBpm; and the DDS-2 units average more than 20 MBpm. There are many manufacturers of DAT mechanisms, and DAT prices range

from \$750 for a basic DDS-1 drive up to about \$1900 for some DDS-2 drives.

**8mm** 8mm drives are based on another consumer entertainment format, 8mm videocassette. Exabyte is the only maker of these drives, using Sony technology. An 8mm drive holds 2.2GB to 10GB of data, depending on data compression and model. The 8mm drives tested at about 22 MBpm with hardware compression, and about 13 MBpm without. These drives, which run from about \$1400 to \$2500, also work well for desktop video producers who want to transfer their work for broadcast (see the sidebar "Video Backup Specialists").

**Digital Linear Tape** The newest type of tape drive, expected to ship by the time you read this, is called DLT (Digital Linear Tape). Made by Quantum, DLT is

the fastest tape-backup device available for the Mac. Spot tests of prototypes showed data-transfer rates around 70 MBpm, fast enough that you need a Power Macintosh 8100 and a very fast hard drive to stream data to the DLT unit at top speed. In fact, you'll cause extra wear on the tape media if you transfer data at anything less than 40 MBpm, so DLT drives aren't recommended for network backup because networks can't transfer data that fast. The DLT's high speed comes with an equally high price tag; estimates range between \$4000 and \$5500.

DLT comes in two models—10GB (standard) and 20GB (more hardware-based data compression). DLT makes the most sense for backup and archival storage of very large files, such as digital

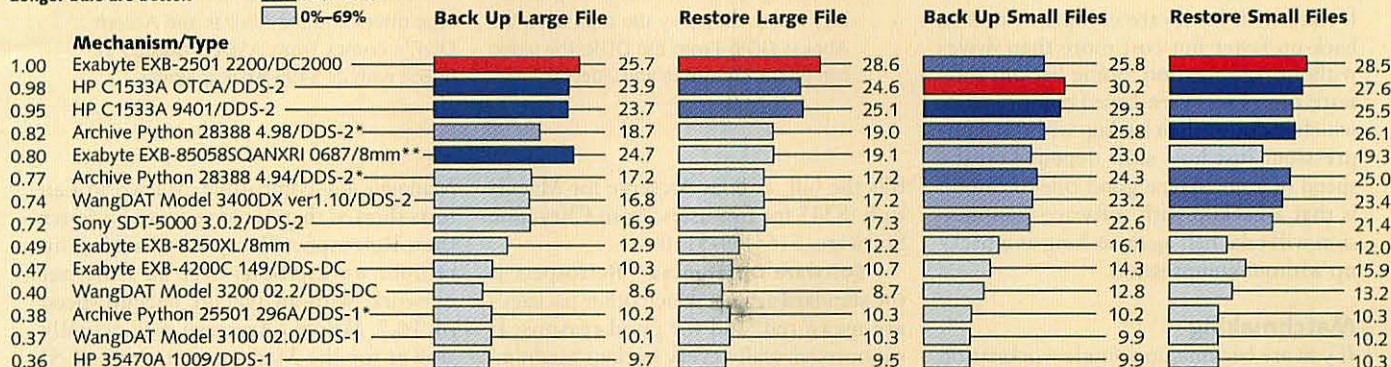


## Tale of the Tape

Mechanisms are listed in order of overall fastest to overall slowest.  
Speeds are in MB per minute.  
Longer bars are better.

Relative Speed:  
100% (fastest)  
90%-99%  
80%-89%  
70%-79%  
0%-69%

The tape-drive mechanisms are listed from fastest (top) to slowest (bottom). To determine rankings, Macworld Lab indexed the combined test results against the fastest system in each test. Thus, the Exabyte EXB-2501 2200-based DC2000 mechanism gets a 1.00, and the HP 35470A 1009-based DDS-1 mechanism gets a 0.36. Index numbers are listed to the left of mechanism names.



\*Archive is now a subsidiary of Conner. \*\*Hardware compression model.

## Network-Backup Software Compared

Speeds are in MB per minute.  
Longer bars are better.

### On an HP C1533A OTCA/DDS-2



### On a WangDAT Model 3100 02.0/DDS-1



### BEHIND OUR TESTS

Macworld Lab tested typical scenarios for single-drive and network-backup needs. To test raw speed (without slowdowns from the Finder and Mac file system) we backed up one large file—a 423.5MB QuickTime movie, from an external 1GB drive to the tape drive—then restored the file back to the same hard drive. We also backed up an assortment of 546 small files—totaling 198.6MB, from the internal 230MB drive of a Centris 650 to the tape drive—and restored the small files to the same hard drive. In all cases, Macworld Lab verified that access privileges (AppleShare and File Sharing) were correctly maintained on the restored machines.

Network tests were run on an Ethernet network consisting of five Macs—one Ili, three Centris 650s, and one Power Macintosh 7100/66. We used a Centris 650 as an AppleShare 4.0 file server with a nearly full 1GB hard drive. The remaining Macs served as clients; one of those (also a Centris 650) was

connected directly to the tape drive. The clients had between 120MB and 250MB to back up. One had File Sharing turned on, with access privileges set up for some other machines. We used the fastest DAT drive to back up the entire network for the Arcserve versus Retrospect trial, and a DDS-1 unit from Tecmar in the Retrospect versus QTSare trial (because QTSare operates only with Tecmar drives). Because the test was designed to simulate overnight backup, network traffic was minimal.

All test machines ran System 7.5 with standard Apple extensions. The test Macs were equipped with 8MB of RAM (except for the Power Mac, which had 24MB of RAM) and used 14-inch Apple Monitors with 8-bit color. Retrospect was used for all single-drive testing. —Macworld Lab testing supervised by Mark Hurlow and Danny Lee



video, prepress, digitized audio, and massive Photoshop documents.

**Autoloaders** For the largest backup needs, consider a tape autoloader, using either DAT or 8mm media. Autoloaders place 4 to 12 tapes into a cassette, automatically switching to a new tape when one fills up. Depending on backup software, you can also address each tape independently, so with the 6-tape Hewlett-Packard DAT mechanism, for example, you can dedicate 5 tapes to an incremental backup of each day of the workweek and use tape 6 as a weekly full backup.

The beauty of this system is that you only need to manually change tapes once a week. We looked at autoloaders made by Conner and Hewlett-Packard, which run \$2700 to \$4500, depending on the vendor. Tape-switching and Retrospect compatibility were reliable on both units.

**Compression** Most tape formats offer data-compression hardware to pack more data on a tape. When the data is restored, the process is reversed. Depending on how compressible your data is (text, database, spreadsheet, and bit-mapped graphics files are most compressible), compression lets you pack almost twice as much information on a tape. Drives with hardware compression also back up faster but cost more than drives without compression. Some backup software offers software-based compression, which is slower than backup without compression. Just how slow depends on the speed of your Mac; a good rule of thumb is that a backup with software compression will take half again as long as a backup without compression.

### Matchmaking

If you are backing up a single workstation with a gigabyte or less of data, you fall into the personal-backup category, and you should buy a DDS-1 DAT or DC-2000 unit. If you need to back up just a few hundred megabytes, take a look at a removable-cartridge system. You'll also need a backup program. Nearly all tape drives ship with Retrospect, making it the de facto standard in backup software.

A workgroup, with 1GB to 2GB to back up, can also use a DDS-1 or DC2000 drive but should mainly look at a DAT drive with hardware compression or an 8mm drive. If you have 3GB to 5GB of data, and if backup speed is a big consideration, a DDS-2 DAT is a better option. The largest workgroups need a DAT or 8mm autoloader. They also need a network-backup program, which designates the Mac with the attached tape drive as the backup server and the other networked Macs as backup clients. Dantz's Retrospect Remote (\$449 for ten users)

## VIDEO BACKUP SPECIALISTS

As the line between desktop and broadcast video grows fuzzier, the 8mm Exabyte tape drive offers an important link for Mac-based animators and special-effects artists who produce for television or high-end presentations. The Abekas DDR (Digital Disk Recorder) is used in professional video-effects houses to create special effects and video animation. The Abekas supplies an 8mm Exabyte tape drive to back up its hard disk.

Knoll Software's (415/453-2471) \$199 Missing Link writes and reads Abekas format on 8mm Exabyte drives. With Missing Link, you can transfer numbered PICT or TIFF files, or QuickTime movies, frame-by-frame to 8mm tape in either NTSC or PAL Abekas format. Then take the tape to a postproduction facility for processing, where they play the tape onto the Abekas DDR. From the DDR, the video can be transferred to any videotape for-



mat with absolutely no loss in quality, since the entire process is digital. Missing Link also works fine in the opposite direction, so you can take original video footage, transfer it to the Abekas, back up the Abekas to 8mm tape, then read that tape's video contents into your

Mac, where you can modify the images with Adobe Photoshop or any of the other Mac graphics tools.

Missing Link comes in Power Mac and 680X0 formats. It also reads and writes 8mm tapes in the Tape ARchive (TAR) format, used by Unix workstations. Some postproduction houses have a competing DDR, made by Accom. The Accom device reads Abekas-format tapes, so you can still use Missing Link to transfer your footage.

Another connection between 8mm tape drives and the Abekas and Accom DDR's comes from ASDG (608/273-6585) with its \$495 Abekas Driver.

fills the bill, as does Arcserve for Macintosh (\$245 for five users, from Cheyenne Software; 516/484-5110).

**Software Differences** Retrospect is the standard against which other packages are measured, and for good reasons: It supports virtually every backup medium, from floppy disks to the fastest tape drives. The program has excellent scheduling, automation, and scripting capabilities, and Retrospect Remote requires only a small extension on each client.

Retrospect 2.1 is Power Macintosh-native, and it supports SCSI Manager 4.3 (included with System 7.5) for the fastest data transfers. Macworld Lab's single-user tests showed that Retrospect is the fastest backup program for backing up a local workstation connected via SCSI, and the Lab's network tests found that Retrospect Remote backed up a DDS-2 system at an average of 15.8 MBpm over Ethernet.

Despite several revisions, Retrospect still has room for improvement, however. Many users find the program's interface confusing, with so many options as to seem overwhelming.

Cheyenne's Arcserve for Macintosh 1.5 is also Power Mac-native, and SCSI

Manager 4.3-compatible. Macworld Lab tests showed that Arcserve was a bit faster than Retrospect Remote at backing up remote workstations over an Ethernet network, with an average backup speed of 16.7 MBpm. Arcserve was actually slower for the Mac connected via SCSI and for the file server, but significantly faster than Retrospect for the Ethernet-connected Macs; so in large networks, the Arcserve advantage would grow.

Getting started with a backup system that uses Arcserve is a little easier than with one using Retrospect, because Arcserve's Quick Script feature provides scripts for full and incremental backups.

**NetWare Expansion** Unlike Retrospect clients, Arcserve clients can initiate a backup to a tape drive that is physically connected to another Macintosh. This allows any workstation to act as the backup administrator. With the optional Client Agent for Macintosh 2.01 software (\$495 per NetWare server for any number of users), Arcserve users on a mixed Mac-PC network can back up to a tape drive on a Novell NetWare network. Arcserve Mac tapes are also interchangeable with Cheyenne's Arcserve for Windows. At press time, Dantz had announced, but



not shipped, a Novell NetWare version of Retrospect Remote that would back up Mac and Windows clients and the NetWare server.

Retrospect backs up local (SCSI-connected) Macs faster than does Arcserve, so if you have a large file server to which the tape drive is attached and a small number of networked clients with small hard drives, Retrospect will give you better performance. Arcserve is faster at backing up networked clients, so it is a better choice for large workgroups—especially those without a big file server.

Arcserve is also less expensive. The single-user version of Retrospect is bundled with most tape drives. To add 10 users and turn the single-user Retrospect into Retrospect Remote costs \$449 list, or about \$260 via mail order. Arcserve costs only \$199 mail order for 15 users.

### Completing Your Backup Plan

Software and hardware in hand, you're in the home stretch; all you need to do is decide how often to back up. First, find out how often your users modify documents that are critical to your business. Accounting files should be backed up every day, as should file and mail servers. You should note that a full backup—every

file on every Mac—is the longest kind of backup and should probably be done just once a week. Incremental backups, which copy only files changed since the last backup, should take place every day.

If there isn't a lot of activity on your company's computers, you might be able to get away with just a weekly full backup. Next, assess yourself. If you are the belt-and-suspenders type, you'll want to do full backups once a week and incremental backups every night. Make sure that your strategy includes periodic full backups of whole hard disks, not just backups of documents. With all of the system extensions and other productivity aids people add to their Macs, it's better to take some extra time and tape space to back up each workstation regularly. It'll mean faster recovery after a restore.

No matter how often you back up, designate a backup administrator. End users won't back up their own computers. It's that simple. The key to a successful backup strategy is to charge one person with the clear responsibility for backing up, then provide that person with the proper equipment and training to get the job done. And don't be stingy. You need to plan and implement your backup solution with the same care you would

take with any other activity that is essential to your business. Tapes are cheap. Rebuilding lost data is very expensive.

### Making the Plan Happen

The hard part of your task is behind you; the actual backing up part is easy. For a workstation or a network, you need to create scripts in your backup software. This directs your drive and software to back up automatically, often while you're at home asleep. On Macs that support software control of power (most Mac II's, Quadras, and Power Macintoshes), Retrospect's client software will run a screen saver until that machine is backed up, then automatically shut down the Mac.

For network backup, connect the tape drive to the machine you've previously designated as the backup Mac (usually your AppleShare file server). Install the network-backup software on the backup Mac, then install the client software (with Retrospect, it's just a small system extension) on each client Macintosh. Open the application on the backup Mac and verify that the program can see each client. Then create your backup scripts. Once a script is complete, run it once as a test.

Create several backup sets of your data, updated over a period of days or

## Tape Options at a Glance

Company	Phone	Toll-Free Phone	Mechanism Types Sold (manufacturer)	Maker of Included Software	Warranty (In years)
APS	816/483-6100	800/235-2753	DAT (Conner), DLT (Quantum)	Dantz	2
Club Mac	714/768-8130	800/258-2622	8mm (Exabyte), DAT (Sony), DC2000 (Exabyte)	Dantz	1 (Exabyte), 2 (Sony)
Contemporary Cybernetics Group	804/873-9000	none	8mm (Exabyte)	varies	2
Dynatek	416/636-3000	none	DAT (Sony)	Dantz	1
Exabyte	913/492-6002	800/392-2983	8mm (Exabyte), DAT (Exabyte), DC2000 (Exabyte)	Exabyte	2
FWB	415/474-8055	none	DAT (WangDAT), DLT (Quantum)	Dantz	1
Hewlett-Packard	415/857-1501	800/826-4111	DAT (Hewlett-Packard)	Dantz	1
La Cie	503/520-9000	800/999-0143	DAT (Conner), Teac (Teac)	Dantz	1
Legacy Storage Systems	508/435-4700	none	DAT (WangDAT)	Dantz	1
Liberty Systems	408/983-1127	none	DAT (Conner, WangTek)	Dantz	1
MicroNet Technology	714/453-6100	none	DAT (Hewlett-Packard)	Dantz	1 (DDS), 2 (DDS-DC, DDS-2)
Microtech International	203/468-6223	800/626-4276	DAT (WangDAT)	Dantz	2
Mirror	612/830-1549	800/643-3374	DC2000 (Exabyte), DAT (Exabyte, Sony)	Dantz	1
Optima Technology	714/476-0515	none	DAT (Optima)	Optima	1
PLI	510/657-2211	800/788-9440	DAT (Sony)	Dantz	1
Procom	714/852-1000	800/800-8600	DAT (Sony)	Dantz	1
Qualstar	818/592-0061	800/468-0680	9-track (Qualstar), 3480 (Fujitsu)	Cyber-Comp	1
Relax Technology	510/471-6112	none	8mm (Exabyte), DAT (Conner)	Diversified I/O	1
Rexon	216/349-0600	800/422-2587	DAT (WangDAT)	Sytron	1
Tandberg Data	805/579-1000	800/826-3237	QIC (Tandberg)	Dantz	2 (drive only), 3 (full kit)
Transitional Technology	714/693-1133	none	8mm (Exabyte), DAT (Sony), DLT (Quantum)	Legato Networker, Dantz	2
Tulin Technology	408/432-9057	none	8mm (Exabyte), DAT (Hewlett-Packard)	Novastor, Dantz	2 (Exabyte), 1 (HP)



## BACKUP ALTERNATIVES

**T**ape has no corner on the backup market. You can back up to removable disks of several kinds, or you can even back up to other hard drives connected to your Mac. In fact, if you have a gigabyte or less of data, consider a second hard drive for backup. A 1GB hard drive (about \$700) represents a fast, convenient way to back up.

SyQuest, Bernoulli, and magneto-optical (MO) removable disks are all good choices for backup under certain conditions. First, you should already have the removable-cartridge drive for another purpose, such as extra online storage, or for moving large files between your company and a service bureau. Tape drives cost less for backup than removable drives—after the hardware investment, tapes cost less than 2 cents per megabyte of storage, compared with up to \$1 for removable media.

Although you can back up with removable media simply by dragging files in the Finder, I strongly recommend investing in a backup program. Retrospect works fine with insertable media, but because backing up to disks is an easier proposition than to tape, there are also several other good backup programs. Redux Deluxe 2.5.1 (\$49 from Focus Enhancements, 617/938-8088) is a fast, easy-to-use program. Dantz has another good program, the \$125 DiskFit Pro 1.1. Surf Guard 2.33 (\$150 from Surf City Software, 714/289-8543) is worth considering.

You'll also find backup programs in Symantec Corporation's Norton Utilities for Macintosh 3.1 (\$149.95; 503/334-6054) and

MacTools Pro 4.0, from the Central Point Division of Symantec (\$99; 503/690-8090), but these are not as good as the other programs already mentioned. Norton Fastback and MacTools Backup are harder to use than DiskFit Pro or Redux Deluxe, and MacTools Backup requires intensive study of the manual to use properly. But if you already own one of these two Symantec packages and you're strapped for cash, it'll do.

For long-term (several years) archiving, a magneto-optical or WORM (write-once, read-many) optical drive works best. Optical drive media last longer on the shelf—up to ten years, versus five for magnetic media. The WORM drive is especially useful for data that is relevant to legal matters; the data can't be changed once written to the optical disk.

If your data is absolutely critical to your company's operations, such as a mail server or a product-inventory database, consider a disk-mirroring system. Sometimes called RAID (Redundant Array of Inexpensive Disks) Level 1, these systems use disk-formatting software (and, sometimes, a NuBus card with a second SCSI port) to read and write your data simultaneously to two hard drives connected together. (For more information on mirroring and other RAID systems, see "The RAID Option," *Macworld*, April 1995.) In any event, you can't base your entire backup strategy on a RAID system; you still need a conventional backup that will provide you with an off-site backup copy of your data in case of fire or other disaster.

weeks. One copy isn't enough. Although a bad backup is unlikely, it can happen.

It's simple to set up a rotating schedule for multiple backup sets. Here's a variation with four sets of backup tapes, labeled A, B, C, and D. First, in your backup software, create a backup script that does a full backup to the tape set labeled A on Friday evening. Then assign the script to add incremental backups to set A on the following Monday through Thursday. The next Friday, you start with a full backup to set B and send the set A tapes off-site for safekeeping. The third Friday it's set C's turn, set B goes off-site, and you bring set A back on-site, ready for its next go-around. Set D is an extra, full-backup set that you run on the first of every month.

A vital link in the data-safety chain is to establish a secure location for a copy of your data away from your company premises. Off-site backup is essential; the best backup plan will fail if your building burns down and all of your backup sets were locked in your desk and destroyed. It's best to establish a routine where the same person brings in the tape for next week's backup set on Friday morning, and leaves that evening with the tape from the current week's set. Arrange to put your off-site backup set in a bank safety-deposit box for optimum safety.

Once your backup plan is running smoothly, regularly test the integrity of

your backups. Periodically do a restore from your backups to make sure that your data is really OK; a rehearsal will also make restoration easier and less stressful when the real thing happens.

Another aspect of safety is wear and tear. As tapes wear out they suffer drop-outs, resulting in lost data (a good reason to have the Verify option turned on in your backup software). It's essential to retire your media before it goes south. If you use your tapes frequently, as you will if you're backing up daily, replace your backup set every six months.

While a tape is in service, the key to its longevity is proper storage. Put the tape into its case as soon as you remove it from the drive. Too much moisture and heat—more than about 125 degrees Fahrenheit—spells doom for tapes. To guard against disaster, buy a fireproof media vault for the media you keep on-site. Media vaults are different from the usual fireproof safes sold in office-supply houses, which keep paper documents from burning at about 450 degrees. Tapes melt at much lower temperatures. A \$150 to \$800 media vault can protect tapes even in a 1200-degree fire.

### The Last Word

We've distilled the wealth of backup options into a few clear choices. Individuals can best back up with two types of tape drives: a DC2000 or a DDS-1 DAT.

Single users can also use removable drives or even a large hard drive. Workgroups will want to look at DDS-2 DAT drives. And large corporate sites should turn to a DAT autoloader.

Sooner or later, someone in your company will lose the data in a Mac, from hardware failure or from an accident like spilling a cup of coffee into the computer. When that happens, all the hard work you put into creating your backup and recovery plan will pay off. With a minimum of fuss and expensive downtime, you'll be able to recover the data and get things back on track. **m**

Contributing editor TOM NEGRINO is the author of *Upgrading Your Mac Illustrated* (Que, 1994).

## TAPE DRIVE MECHANISMS



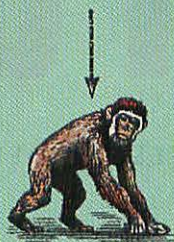
Macworld Lab tested drive mechanisms, not end-user products, so no Editors' Choice selection was made. The performance of all products based on a particular mechanism should be nearly identical; users should consider the price, warranty, software, and support policies of each vendor before choosing between equivalent drives.



# Evolution of the organized life-form.



*A. Pond Slime*



*B. Ape*



*C. Human Being  
with Electronic Organizer*



*D. Platypus*



*E. Human Being  
with Newton MessagePad 120*

Why is the Newton® MessagePad™ 120 more highly evolved than ordinary electronic organizers? The MessagePad 120 lets you easily share information with your Macintosh® or Windows™-based PC, so it's like putting your office in the palm of your hand. You can even connect it to your cellular phone, allowing you to send



Newton

wireless faxes and e-mail,  
tap into on-line services  
and print your work from

anywhere you  
happen to be.  
And with the  
hundreds of



software titles now available—such as FilePad®, OmniForm™ and PowerForms™—you can customize the MessagePad 120 to suit virtually any business need. So, if the name of the game is survival of the fittest, which weapon would you rather be holding?



## Introducing the Newton MessagePad 120.

For product information and a dealer near you, call 800-909-0260.

All Apple® products are designed to be accessible to individuals with disability. To learn more (U.S. only), call 800-776-3333 or 711/800-833-6223. © 1995 Apple Computer, Inc. All rights reserved. Apple, the Apple logo, the lightning bolt logo, Macintosh and Newton are registered trademarks of Apple Computer, Inc. MessagePad is a trademark of Apple Computer, Inc. FilePad is a registered trademark of iScribe Communications, Inc. OmniForm is a trademark of Wright Strategies. PowerForms is a trademark of Seair, Inc.



EDITED BY CATHY ABES

# Graphics

THE LATEST IN DESIGN, PUBLISHING, AND PREPRESS

## Quark Extends Beyond Page Layout

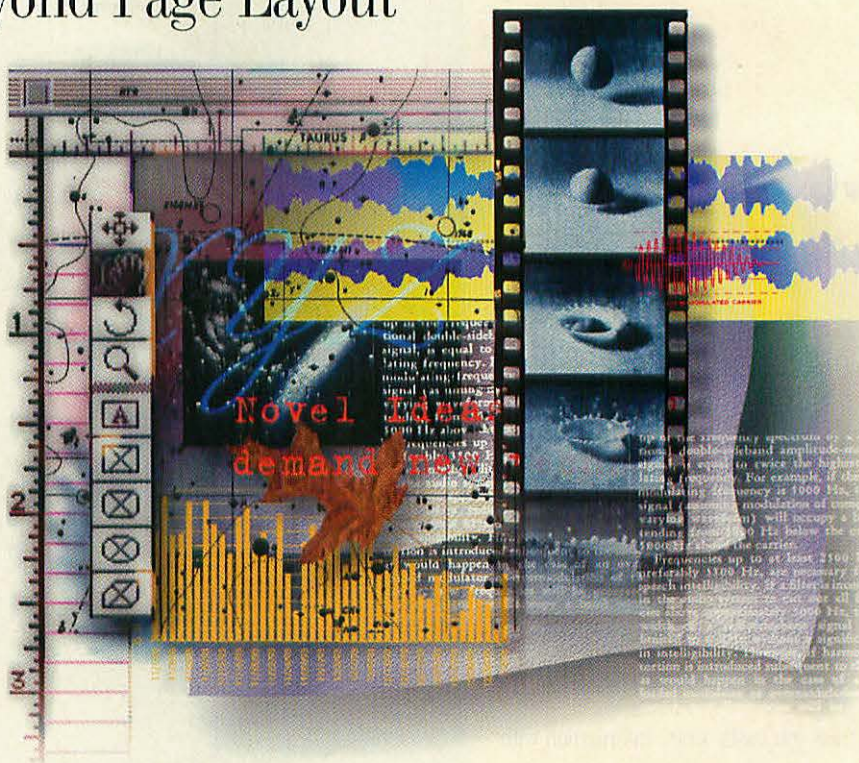


ARMED WITH AN INNOVATIVE XTension that can make any QuarkXPress file interactive and a powerful image editor, Quark is moving beyond its familiar page-layout arena to battle competitors on two new fronts. The new XTension technology, code-named Orion, will make it possible for QuarkXPress users to create interactive or online documents without switching to a multimedia program such as Macromedia Director—they'll be able to do it all within QuarkXPress. Meanwhile, on the image processing front, the company expects QuarkXPosure to lure Photoshop users to its ranks.

**From Page Layout to Multimedia** Orion will let you add audio, QuickTime 2.0 video, animation, hyperlinked text, and interactive buttons to any QuarkXPress 3.31 (680X0 or Power Mac) document, transforming it into a multimedia file for use online, in kiosks, on CD-ROM, or in any other screen-based presentations. You'll also be able to distribute, royalty free, a stand-alone viewer utility that lets any Mac or Windows PC user view your document.

To use Orion, you'll launch or create a QuarkXPress document; select a page element; generate a link in XPress's Utilities menu; and assign one of about 40 actions to the link, such as playing a movie or an audio clip, or running an Orion script, which strings actions together.

With Orion's Button Maker feature, you can import or create a graphic to serve as an interactive button in your document by simply dragging it onto a page—a pause button, for example, would let viewers temporarily stop QuickTime playback in an Orion presentation. Buttons aren't required for interactivity, though. Orion automatically transforms the cursor into a finger to signify a hot



area; a button simply makes the interactivity more obvious to the viewer.

You'll have three options for exporting a finished presentation: as a single Orion viewer file, by including reference files (such as QuickTime movies) and choosing such settings as monitor bit depth, antialiasing, and QuickTime compression method and quality; as two files—with elements that require high-speed performance residing on the hard drive and those that don't, on a CD-ROM; or in HTML format for uploading to the World Wide Web on the Internet.

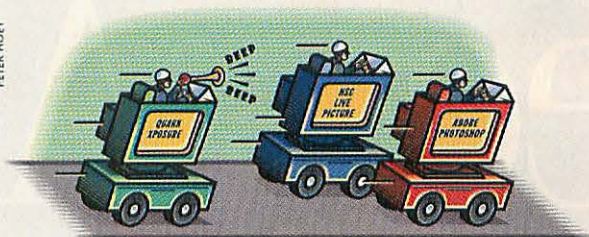
Orion, Button Maker, and the viewer utility should be available by midyear. The Orion XTension will be priced the same as QuarkXPress or will cost slightly

less if you buy QuarkXPress at the same time. Future versions of the product will include AppleScript support and the ability to create database links.

**A New Image Processor** Billing QuarkXPosure as an image processing program whose strong points are speed and flexibility, Quark is pitting its new image editor—for Power Macs only—directly against Adobe Photoshop, HSC Software's Live Picture, and Fauve's xRes. Like Photoshop and xRes, QuarkXPosure sports a full array of drawing, painting, masking, cloning, and retouching tools; but like Live Picture and Specular Collage, it doesn't apply your changes until you're ready to rasterize the file.

A key element of XPosure is its Operations palette, where each change you





make to an image is recorded and listed for you to see. You can change, undo, or reorder any operation you've applied by simply editing the Operations list; for example, to change the order in which you've applied two filters, you just drag one above the other in the list. The Snapshot feature lets you preview the different versions of an image described in the Operations list, so you can save revisions for comparison and then select the version you prefer.

Selection areas are called *lenses*—a lens contains a set of operations you've performed on an image, rather than a group of pixels that have been manipulated. A list of operations performed on an image can be exported in a small file; you can then apply those operations to a copy of the original file or in batch mode to other images that need similar corrections. Text is treated as just another object—you can manipulate or edit it at any time. You can also combine object-based paths with rasterized images.

Although you can directly edit high-resolution files, QuarkXPosure's offline editing feature allows you to edit a low-resolution version of a file, then apply those changes to the high-resolution version later in batch processing mode.

Along with providing built-in effects filters and brush options, QuarkXPosure

will support Photoshop plugins and will be integrated with QuarkXPress (XTensions developers will be able to add new tools and integrate new features into XPosure). It will also include color-separation and -correction technology developed by PixelCraft, as well as support for ColorSync 2.0. Due in mid to late summer, QuarkXPosure will list for \$895. The company is planning special pricing for QuarkXPress users. Quark, 303/894-8888.

—CATHY ABES AND JAMES A. MARTIN

## GX Aids New Layout Programs



DESIGNERS AND PUBLISHERS will finally get a chance to explore QuickDraw GX's type and printing features with two GX-based page-layout applications—SoftPress Systems' UniQorn and Manhattan Graphics' ReadySetGo GX.

Developed by a British start-up, UniQorn takes full advantage of GX's intelligent outline-font data structure. For instance, you can stretch, rotate, and skew text; edit text on a path; and easily change a GX font's weight and width. And UniQorn's support of GX's extensible print architecture lets you print a document that contains pages in both portrait and landscape modes.

Unlike most layout applications, which employ separate text and picture frames, UniQorn lets you put text and graphics in the same frame. You can change the orientation of a page from landscape to portrait at any time—the dimensions of the frames adjust accordingly, and the text reflows automatically.

You get simultaneous multiple views of a document, including layout, galley (story-editing), and thumbnails. UniQorn automatically generates and names new styles based on the font and type size you've applied, listing them in a floating palette, and can apply styles at the character level.

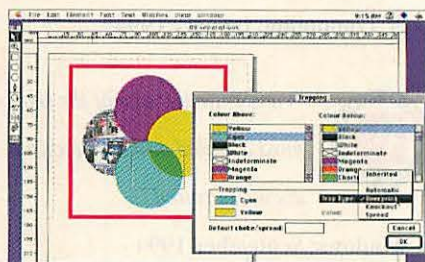
Because UniQorn can directly map styles to Hypertext Markup Language (HTML) tags, PostScript documents can be reformatted for publishing on a World Wide Web server.

## IN BRIEF

■ **Live Picture 2.0** The latest version of HSC Software's Live Picture (\$995; see *MacBulletin*), which is due out by March, features color-correction and color-separation controls, batch processing, new positioning tools, faster processing, and lower RAM requirements (20MB). 805/566-6200.

■ **High-Power Color Servers** Radius's SplashMX (\$16,900), SplashMXplus (\$20,900), and SplashTX (\$26,900) Server Upgrades for Macintosh are network-based Mac workstations that—equipped with Adobe Photoshop, Acrobat, Color Central Open Prepress Interface (OPI) software, and RIP-based color correction—turn a Xerox Majestik color copier into a color printer, scanner, and proofer. 408/541-6100.

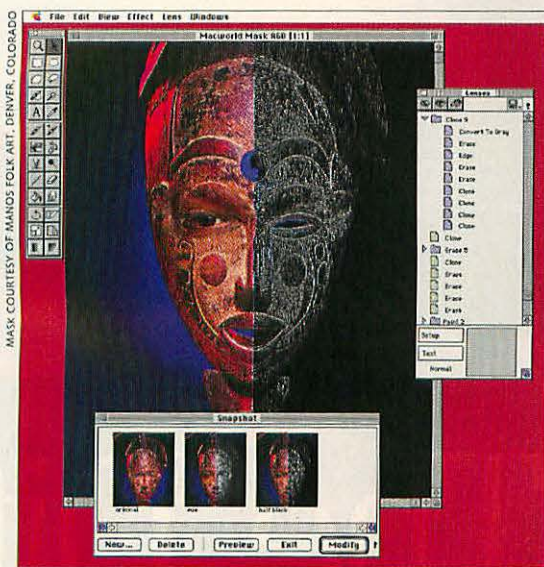
■ **Photoshop Image Enhancements** ColorMatrix, a \$295 plug-in filter from Total Integration, allows you to perform Scitex-level color correction within Photoshop. 708/776-2377.



UniQorn offers basic trapping of spot colors. You can closely inspect traps on screen by enlarging them; the program lets you override automatic traps as well.

UniQorn plays and records AppleScripts; QuickTime and OpenDoc support will be added later. A combined Power Mac-native and 680X0 version is due by late June. At press time, SoftPress did not have a U.S. distributor; the retail price will be in the \$700-to-\$900 range.

Meanwhile, ReadySetGo GX 7.0 is due to ship by early April in separate Power Mac and 680X0 versions (\$395 each). Version 7.0 incorporates standard GX type and printing features, with separate versions to support Arabic, Hebrew, and kanji. The non-GX version, 6.0, will still be available. Manhattan Graphics, 914/725-2048; SoftPress Systems, 011-44-1993-882588. —JAMES A. MARTIN



QuarkXPosure tracks your image manipulations (lenses) in a fully editable hierarchical operations list, while its snapshot feature provides a visual trail.



**V**iewSonic has become synonymous with providing superior high performance color monitors to a demanding industry. As a recognized price/performance leader, we are committed to designing outstanding monitors that continue to win awards. In fact, here are some comments from a few editors:



*"Some folks crave performance. Some look for price. And then there are those who want it all. If you belong to the third crowd, the ViewSonic 17 is the monitor for you."* – PC World; April 1994



*"Best color quality, best sharpness and best versatility – what more could we ask of the ViewSonic 17? Frankly, we were surprised that one monitor could do it all."*

– PC Computing; January 1994



*"ViewSonic has one of the sharpest, most detailed and well-focused displays around."*

– Windows; September 1994

Our **new** ViewSonic 17 monitor is loaded with features including OnView™ controls (on-screen menu to adjust screen images to your liking), ViewMatch™ (matches screen colors to printer output), ARAG® coating (virtually eliminates screen glare and reflection), and refresh rates up to 160Hz. No wonder this 17" monitor (15.7" diagonal viewable area) keeps on winning awards, generation ... after ... generation!

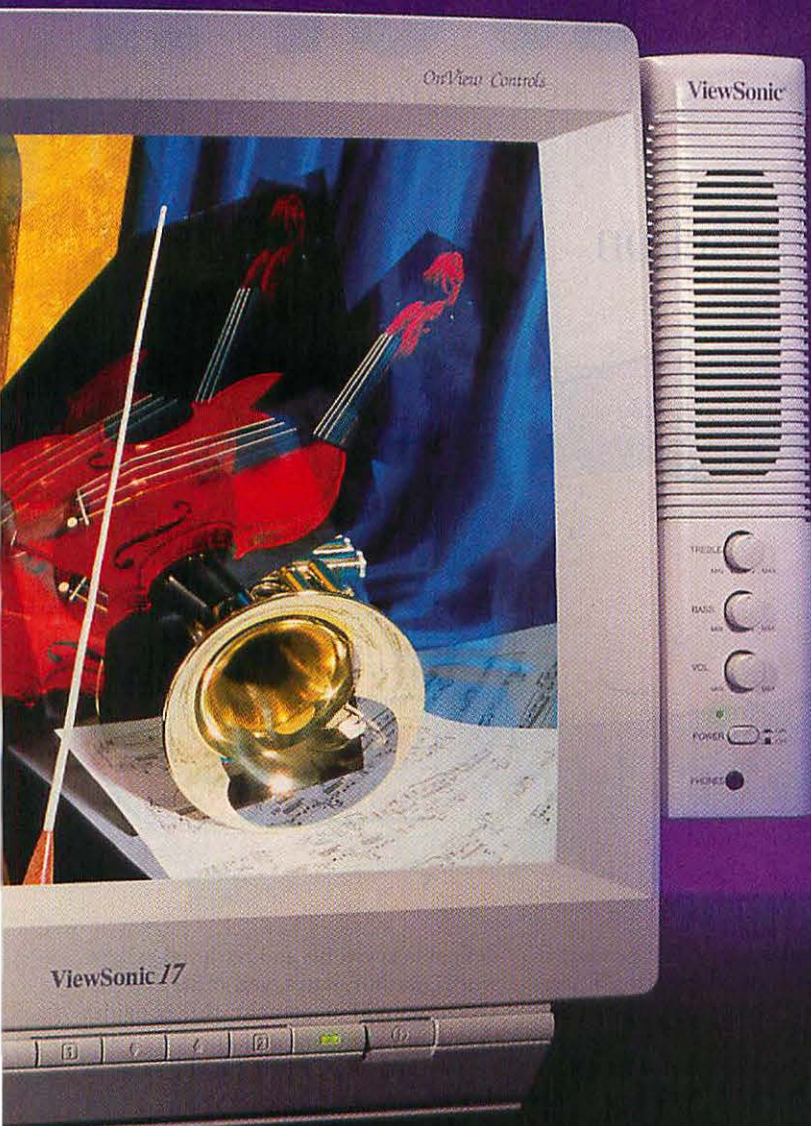
# See. A



# The Dif



# nd Hear.



With an eye and ear  
towards the future,  
ViewSonic is expanding  
into the world of  
multimedia – with our  
new **PerfectSound™**



Model VS127 speakers. These *amplified*,  
*magnetically shielded* speakers are designed to  
be attached to the monitor or stand alone. In  
fact, when attached to our monitor they blend in  
so well they appear to be built-in. And they utilize  
state-of-the-art *wave guide technology*  
combined with a bass enhancing *super woofer*.  
These speakers pump out high fidelity sound  
with such power and clarity that you'll find it  
hard to believe you're listening to a compact 20  
watt system. **PerfectSound™** speakers offer  
advanced audio technology combined with an  
*ergonomic, space saving design* – each  
speaker is only 2.4" wide! Controls include bass,  
treble and master volume.

*Sounds so vibrant and realistic, you'll swear  
you're sitting in front of an orchestra – not  
your computer!*

The ViewSonic 17 is MPR-II low radiation and  
EPA Energy Star™ compliant.



***The first of the multimedia product  
line from ViewSonic!***

**ViewSonic®**  
**See The Difference!™**  
*and Hear*

Tel: (800) 888-8583 or (909) 869-7976; Ext. #236  
Fax: (909) 869-7958  
Call FaxSonic at (909) 869-7318 (fax-on-demand)  
Request Doc. 320 (VS127), 152 (17)  
Applelink: VIEWSONIC Compuserve: 73374, 514  
All products and trademarks are brand names of their respective companies.

**Circle 59 on reader service card**



# At Work

THE LATEST TOOLS FOR BUSINESS COMPUTING

## Power Mac Drives Database Action



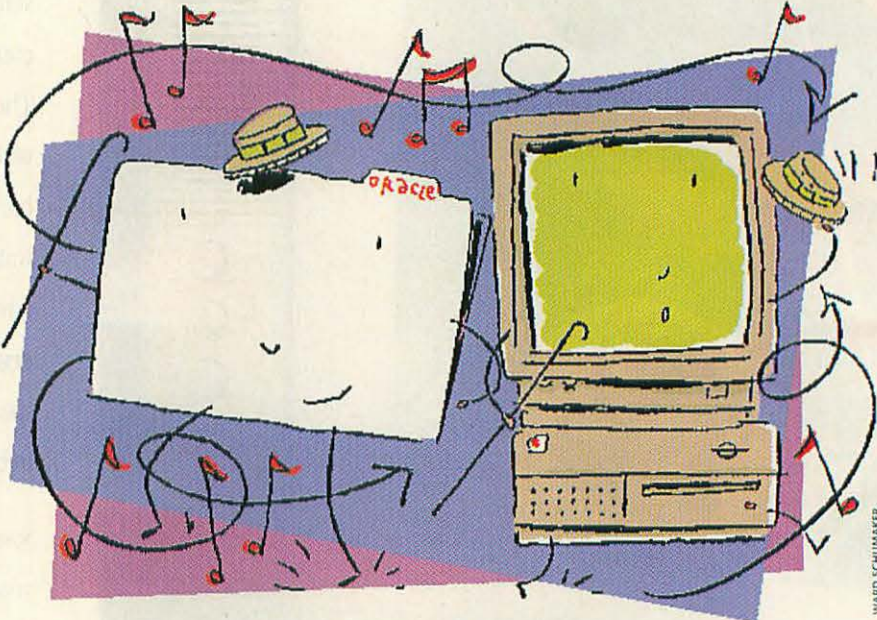
WILL THE POWER MAC GIVE Apple an entrée into big business? Only if the company can first convince database vendors that the

Power Mac's high-power platform can support the data-management tools big businesses need. And prospects are beginning to look up: Oracle Corporation, the leading database vendor, is launching a new line of database-development and -deployment products for the Mac, including a full-featured SQL database server for the Power Mac. Meanwhile, EveryWare Development, a small company that sells Butler—which until Oracle ships will be the only SQL database engine for the Mac—is shipping its Power Mac-native Butler and expanding its product line with a series of Butler-based office-automation tools to tie large workgroups together.

**Oracle: Mostly There** With some significant exceptions, the Mac versions of Oracle's Workgroup/2000 products will be at parity with Workgroup/2000 products on other platforms.

The new product line includes Personal Oracle7, a database-development environment; application-development tools called PowerObjects, for the non-technical user; and Oracle7 Workgroup Server, which requires a Power Mac. However, the company has no plans for a Mac version of Oracle7 Enterprise Server, which runs organization-wide applications distributed across multiple servers, including OS/2, Windows NT, and Unix.

Personal Oracle7 should ship in the second quarter of 1995 for \$399; PowerObjects should ship in mid-1995 for \$399; and Oracle7 Workgroup Server should ship in mid-1995 (server and runtime pricing depend on number of users). Oracle is also developing a utility for converting XBase files into Oracle databases.



**Applied Butler** The first product in EveryWare's office-automation Enterprise series is Time Capture, which combines a group scheduler that helps plan tasks and meetings with tools for tracking work and gathering time-billing information. Because Time Capture's Butler engine is pure SQL, information gathered in Time Capture (or any other Enterprise-series product) can easily be accessed from other applications. For example, if you schedule a block of time to work on a client's project and later record the work completed, Time Capture can deliver that information to an accounting package for billing. Time Capture is shipping; price depends on number of users, starting at \$149 per user.

Scheduled for a first-quarter 1995 release is Enterprise Document Management, which provides access to documents and keeps track of who uses them. Documents can be categorized with user-

definable keywords and retrieved by keywords, author, dates, and other criteria. Document Management also provides document check-in and check-out and version tracking. Pricing is the same as Time Capture's.

Also scheduled for a first-quarter 1995 release is Enterprise Periscope, a tool kit for building point-and-click database front ends, often called executive information systems, that provide quick, graphical summaries of the underlying database. Periscope can access data from Butler, as well as from Oracle, DAL-compliant databases, and ODBC-compliant databases. Periscope's final pricing was not set at press time.

EveryWare is also developing a contact manager and a print-monitoring utility. Both are scheduled to ship later in 1995; pricing was not set at press time.

**The Future of Databases** Will other major players in the database market



move to the Mac, now that its performance is not an issue? That depends on how well the Power Mac penetrates the business world—which may depend in turn on how many Oracle clients decide to give the Power Mac a chance. Mean-

while, Oracle competitors CA/Ingres and Sybase are playing wait and see with the Power Mac, while IBM would not comment on its plans for DB2.

EveryWare Development, 905/819-1173; Oracle, 415/506-7000.—D.L.

## The Bar-Code Technology Boom

THOSE BLACK-AND-WHITE-STRIPED bar-code labels you see everywhere—on retail packaging and rental cars, machine parts and medical X rays—are a basic requirement for tracking any kind of inventory these days, and vendors are at last laying a solid infrastructure for producing and processing bar codes with the Mac.

Videx, for example, is shipping several Mac bar-code products. BarCode Labeler II is a \$149 software package for creating and printing bar-code labels. It provides label-layout features, can merge data from a database, and can print numbers in sequence for such uses as serial numbering. It supports seven common bar-code symbologies, including UPC (A&E), the most common U.S. retail symbology. Videx also sells a bar-code reader called the OmniWand; a Mac version of Application Builder, the software for creating OmniWand applications, should ship in February for \$349. Application Builder is intended to enable non-technical users to produce bar-code applications quickly. It can parse and validate data collected by the OmniWand, issue error messages, and perform other essential point-of-sale and inventory-tracking tasks. The OmniWand starts at \$1235.

Bar Code Systems offers a couple of important links in the bar-code cradle-to-grave data-capture chain. It markets the TEC (Tokyo Equipment Company) B-472 and B-572 thermal-transfer printers, which can run on the Mac. The \$1995 B-472 prints 200-dpi bar codes at 10 inches per second; the \$3495 B-572



The OmniWand bar-code reader also has a keypad for entering data not captured in the bar code.

prints 300-dpi bar codes at 8 inches per second and includes a wide variety of fonts and bar-code symbologies. Bar Code Systems also manufactures the Xaminer 5500, a \$2295 hand-held unit that tests bar-code printer output for compliance with ANSI standards.

Bar Code Systems, 404/399-5921; Videx, 503/758-0521.—D.L.

## Peachtree Blooms Again

THE COMPETITION IN SMALL-BUSINESS accounting software is heating up: BestWare recently shipped M.Y.O.B. 5.0 at \$139 list, and Intuit just launched a Mac version of QuickBooks for about \$120 street. Now, long-quiescent Peachtree Accounting for Macintosh (PAM) is reemerging in version 2.5 at \$99 street.

PAM 2.5 includes job costing, payroll, and inventory; the inventory feature handles assemblies, as well as noncommodity products, such as consulting time. PAM can switch between cash and accrual accounting; includes quick analyses of cash, receivables, and payables to give business owners a high-level view; has a floating palette with a guide that explains

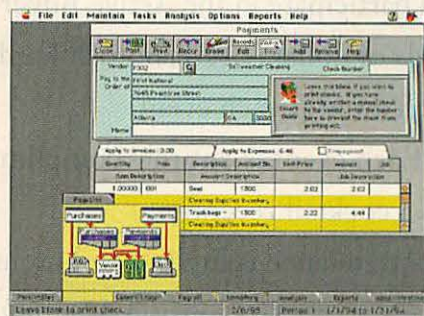
### IN BRIEF

#### ■ Multisite Point-of-Sale

Ensign Systems is expanding its POS/IM (Point-of-Sale/Inventory Management) product line with a central-office database that gathers information from satellite retail sites for use in redistributing inventory and consolidating accounts. The new module, which should ship in March, was unnamed and unpriced at press time. 801/546-1616.

#### ■ Excel Budgeting, QA

**Plug-ins** Spreadware is taking advantage of Excel 5.0's Visual Basic for Applications to produce more-sophisticated Excel add-ons than were possible under Excel 4.0. Spreadware Budgeting, which is shipping for \$289, can break up the corporate-budget pie so that each department can develop its own budgets, then consolidate the slices; it also provides budget-analysis tools. In March, Spreadware will release Stats SPC (Statistical Process Control), a collection of specialized tools for evaluating manufacturing and other measurable processes. Stats SPC will list for about \$350. 619/772-1758.



Peachtree Accounting for Macintosh version 2.5, showing the flowchart window for navigating through the database.

each step of every transaction; and presents the database as a series of flowcharts so that users can easily grasp the database structure.

PAM 2.5 should ship in March. It is multiuser over AppleShare or file sharing; its price covers all users accessing one copy of the program (of course, performance will suffer as users stack up). Each module can have a different password.

BestWare, 201/586-2200; Intuit, 415/322-0573; Peachtree Software, 404/564-5700.—D.L.

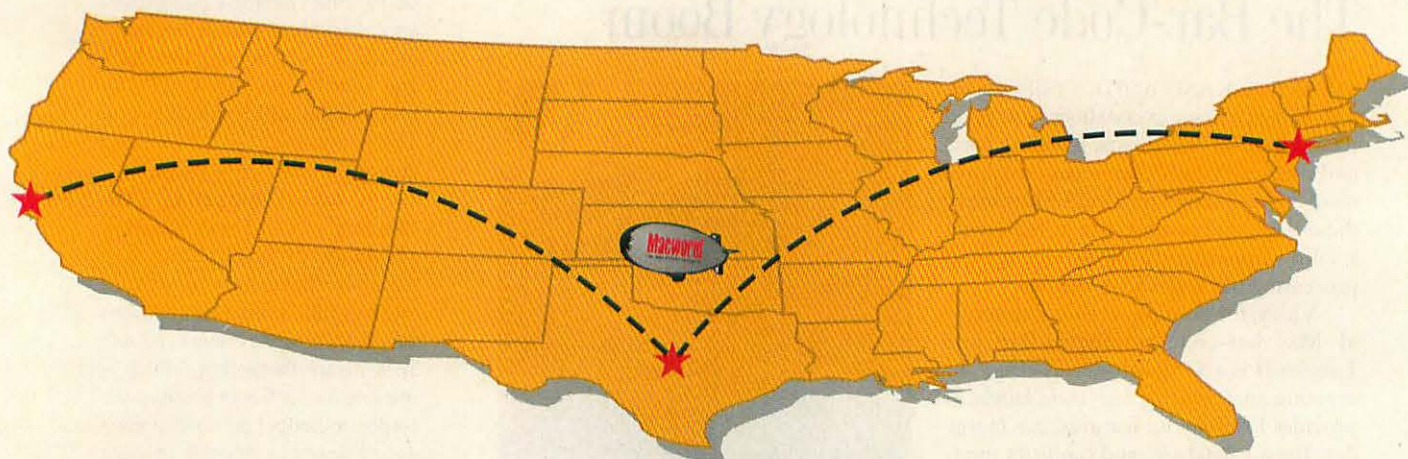


The TEC B-series thermal-transfer devices are used for on-demand printing of bar-code labels.



*An exclusive invitation for*

# Macworld Active Buyers



**M**acworld cordially invites you to attend an exclusive and complimentary **ACTIVE BUYER DAY** in 1995!

Interact with 20 top Macintosh developers and resellers, see private demos, take advantage of special event discounts and participate in the Active Buyer Sweepstakes where thousands of dollars of Macintosh hardware and software will be given away at each event!

Each event is entirely complimentary and includes lunch and a cocktail reception.

Attendance is limited and exclusively for qualified Active Buyers, so register today. A Macworld representative will contact you with additional information.

**Yes!** I'm a Macworld Active Buyer. Contact me about attending this exclusive event:

- ☐ **Graphics**  
New York, April 19
- ☐ **Multimedia**  
San Francisco, June 14
- ☐ **Mobile Computing**  
Austin, October 11

Name			
Title			
Company			
Address			
City	State	Zip	
Phone	Fax		
Number of Macintosh computers I currently have purchase involvement for:			

## Graphics

New York City, April 19

## Multimedia

San Francisco, June 14

## Mobile Computing

Austin, October 11

**ACTIVE  
BUYER  
DAYS**

**Macworld**  
THE MACINTOSH® AUTHORITY





BY JIM HEID

# Working Smart

## Conquering Font Overload

THE MAC'S SYSTEM FOLDER HOLDS MANY resources, but only one category helps you express yourself: fonts. Professional publishers have huge font libraries, and many of the rest of us aren't far behind. Many printers and programs come with font collections. Free and shareware fonts abound. Fonts are fun—you can never have too many ways to express yourself.

Until, that is, you fall victim to the many side effects of fontmania: launching programs takes longer; the Font menu sags past the bottom of your screen; and your System Folder bloats, becoming a ball and chain at backup time.

This month's column details a font-management strategy designed to avoid these problems. For tips on using PostScript printers, see "Using Printer Fonts." And for essential background on the various pieces of the font puzzle, see "A Field Guide to Fonts and Their Icons."

### Font Management: Overview

If you have a moderate-size font library—ten or so fonts with the standard plain, italic, bold, and bold italic styles—you probably don't need to worry about managing your fonts. But as your font collection grows, it's inefficient to just chuck every font into the System Folder. Better to install only your everyday fonts that way, and organize other fonts into logical, related categories by how you use them: one set for the company newsletter, another for the technical manuals, perhaps another with flashy fonts for invitations and certificates.

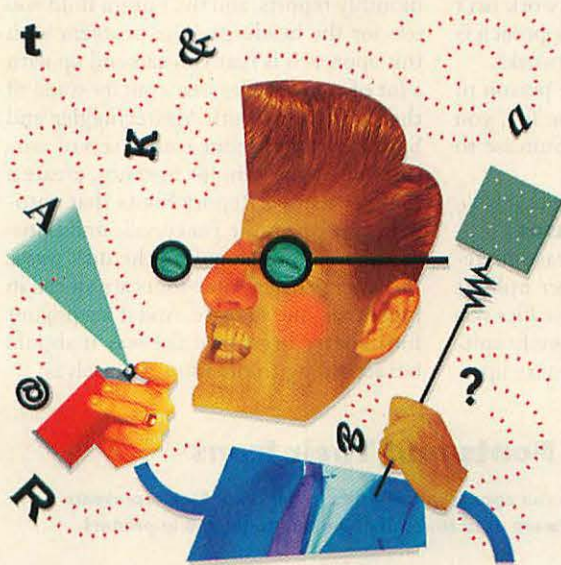
The Mac doesn't provide such font-management luxuries, but you can get them by combining features it does provide with either Suitcase 2.1.4 (\$79; Symantec Corporation, 503/334-6054) or MasterJuggler 1.90 (\$69.95; Alsoft, 713/353-4090). I recommend MasterJuggler; it's easier to use and has a much more up-to-date manual.

Creating a streamlined font-filing system involves three phases: grouping

fonts into suitcase files; organizing suitcases and their related printer font files into folders; and using Suitcase or MasterJuggler to open and close suitcase files and create font sets as needed.

### Phase 1: Packing Suitcases

The Mac used to include a utility, Font/DA Mover, that allowed you to create suitcase files and move fonts in and out of them. Font/DA Mover is still around, but it's no longer included with the Mac's system software. (It is included with Suitcase and some other products, and it's available on America Online.)



You can create and pack suitcase files in System 7's Finder without using Font/DA Mover. The secret is to start with an empty suitcase file, which you can create yourself. To avoid wiping out any fonts, use the Finder's Duplicate command to make a copy of a suitcase. Double-click on the copy to open it, choose Select All after it opens, and drag the fonts to the Trash. Close the suitcase file's window and rename it. From now on, each time you want to create a new suitcase file, just copy and modify your "master" empty suitcase. To prevent accidental modifi-

cation of your master, lock it using the Finder's Get Info command.

Everyone has his or her own suitcase-packing techniques, whether you're talking Samsonites or fonts. For the latter, what I do is pack all four styles of a given font family into a suitcase that I've named after the family.

When you're packing the fixed-sized fonts that the Mac uses for its screen displays, you have another decision to make: how many fixed sizes to include in the suitcase. The Mac needs only one fixed size to be able to use a PostScript font; it doesn't need any fixed sizes to use a TrueType font. Thus, you can save some disk space by not storing a lot of fixed-sized fonts.

But there's a catch: when you choose a font size for which no fixed size is available, the Mac must generate, or rasterize, the size on the fly. PostScript fonts use Adobe Type Manager (ATM) to do this; the Mac's system software does it for TrueType fonts. (ATM 3.8.1 \$39.95; Adobe Systems, 415/961-4400; often included free with Adobe products.) This rasterizing process takes a moment or two; the delay can be especially apparent on slower Macs. For

this reason, you get the best scrolling and text-display performance if you retain the fixed-size fonts for the type sizes you use most often.

So how do you do the actual packing? Use the Finder. First quit any open programs or desk accessories and then open up the System Folder's Fonts folder (or the System file itself in System 7.0). Finally, drag each font into the empty font suitcase you created earlier. If the fonts you want to move are already stored within a suitcase file (as they can be in Systems 7.1

*continues*



and 7.5), you can drag the entire suitcase into the new suitcase, or open the suitcase file and drag only the font sizes you want to the new suitcase.

### Phase 2: Filing the Fonts

You've created a suitcase file for each of your font families, and you've copied to each suitcase file that family's fixed-size fonts plus any TrueType fonts. But organizing fonts into suitcases is one thing; deciding where to store the suitcase files, with the printer font files PostScript fonts require, is another.

One of the beauties of using Suitcase or MasterJuggler is that you aren't restricted to storing fonts in your System Folder. You can stash them in separate folders on your hard drive, on a removable-cartridge drive, or even on a network file server. The file server approach has important advantages for a large office: it makes it easy to standardize on a consistent set of fonts, and it eliminates the need to store PostScript outline fonts on each user's hard drive. If you store a typeface's outline fonts in the same folder with the typeface's suitcase file, the Mac's PostScript printer driver as well as Adobe Type Manager will still be able to find the outlines. Note, though, that accessing fonts over a LocalTalk network isn't exactly speedy; the file-server approach is most practical for Ethernet networks.

If you want more than one person to be able to open a given suitcase file, you need to tell MasterJuggler or Suitcase to open that file as shared.

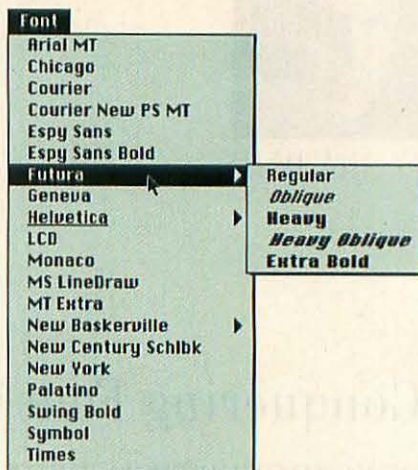
### Phase 3: Managing Suitcases

Using MasterJuggler or Suitcase to access fonts is easy: just use either utility's Open button to open the suitcase files you need. Both utilities let you specify suitcases to open automatically at start-up.

But there are some flies in the font-management ointment, and they have to do with the way Mac programs access fonts. A program builds its Font menu when you start it up—if you open a suitcase after starting a program, the fonts you open won't show up in the program's Font menu. To access them, you have to quit the program and then relaunch it.

A potentially more serious problem surfaces when you close a font suitcase while a program is running. Mac programs aren't smart enough to know that a given font is no longer available—the font still shows up in their Font menus. If you choose the closed font's name, the program you're in could crash. System 7 doesn't let you install or remove fonts when programs or desk accessories are open, but MasterJuggler and Suitcase do. Fortunately, it's easy to avoid both problems: just remember to open the fonts you need before starting the program in which you'll use them, and to quit that program before closing those fonts' suitcases.

I've mentioned that a good font-management technique is to create font sets for the types of documents you work with. One way to do this is to create a suitcase file containing those fonts—for example, the Baskerville you use for the text of your monthly reports, and the Futura Bold you use for the headings. The problem with this approach is that you can end up with a lot of suitcase files that contain some of the same fonts. Both MasterJuggler and Suitcase let you define named sets of suitcase files—you can, for instance, create a font set named Report Fonts that automatically opens the Baskerville and Futura suitcase files, avoiding the disk waste that occurs when some fonts are stored in more than one suitcase. And it keeps your font library organized the way it should be: according to the fonts themselves.



**Reunited We Stand** Adobe Type Reunion cuts down on Font-menu clutter by grouping font styles under the font's family name.

### Reunite that Font Menu

Using MasterJuggler or Suitcase reduces one kind of Font-menu clutter; Adobe Type Reunion addresses a different kind (ATR 1.0.3 \$65; Adobe Systems). The problem surfaces with PostScript fonts that include screen fonts for each style variation (italic, bold, bold italic, and so on). Having these style variants is wonderful because it gives you a screen display that's more faithful to the final output. But the downside is that each style variant shows up in your Font menu. Install a few such font families, and you can't help but suffer from sagging Font menus.

To address this mess, Adobe Type Reunion groups styles under the font's family name (see "Reunited We Stand"). Adobe Type Reunion is included with some Adobe programs, including the CD-ROM versions of Illustrator 5.5 and Photoshop 3.0.1. WYSIWYG Menus, part of Now Utilities (\$89.95; Now Software) continues

## A Field Guide to Fonts and Their Icons

Several kinds of icons can appear in the Fonts folder; each kind represents a different piece of software used to render type on screen and in printers.

### Fixed-Size Font File

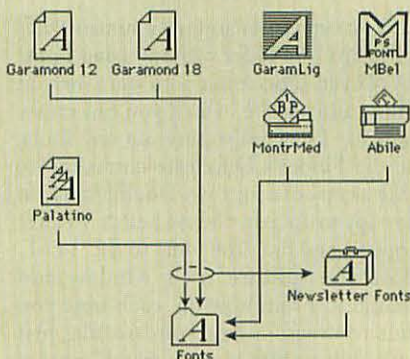
A dog-eared page with a single letter A indicates a bitmap of one font size. Fixed-size bitmaps help PostScript and TrueType render type on screen.

### TrueType Outline Font

The triple-A icon indicates a TrueType font, which can generate type of any size. You need not install fixed-size bitmaps for TrueType fonts, but doing so improves rendering speed and the quality of fonts on screen.

### Fonts Folder

Under Systems 7.1 and 7.5, all fonts and suitcases live in the Fonts folder inside the System Folder (unless you manage fonts with a third-party utility).



### PostScript Font

Contains font outlines for PostScript printers. Also used by Adobe Type Manager for high-fidelity fonts on screen and on QuickDraw printers. Requires at least one fixed-size font of the same family. (Icons vary by vendor. Shown clockwise from upper left: Adobe, Monotype, Fluent Laser Fonts, and Graphitec.)

### Suitcase

A convenient way to organize fonts. Suitcases can contain TrueType fonts and any sizes and styles of fixed-size fonts (but not PostScript fonts).



**JUST ONE OF THE 1.4 MILLION  
SATISFIED QUICKMAIL  
CUSTOMERS WORLDWIDE**

true measure of  
success is the millions of satisfied customers,  
like Addison-Wesley, who depend on  
QuickMail every day.

*"We selected QuickMail because it is the only E-mail program that allows our people to work the way they want to work. We are now using QuickMail not just as an E-mail program for quick notes, but as our main business communication tool."*

Streamlined communications, efficient file transfers, and the ability to conveniently and inexpensively communicate across the hall and around the world – that's QuickMail.

Discover why more than 1.4 million customers (like Addison-Wesley) selected QuickMail. Complete the order form and we'll send you a complete QuickMail electronic mail system ... absolutely FREE.

# ANOTHER ONE IN A MILLION

*"We evaluated cc:Mail  
and Microsoft Mail  
and, without a doubt,  
QuickMail is the best!"*

Jane Tamlyn-Hayden,  
Technical Services Consultant

## QuickConference and MailManager

- Easy-to-install E-mail server and administrator software
- Clients for Mac, Windows, and DOS
- MailManager™ (rules), to simplify mailbox management
- QM Remote™ to send and receive E-mail from the road
- QM Forms™ to create custom forms

- QuickConference™ to communicate in real time on-screen
- Built-in spell checker and powerful searching capabilities
- Free bridges and gateways

**No other E-mail system on  
any platform delivers all  
this in one box.**

**YES!**

**I want to set up QuickMail in my office for FREE!**  
**Fax to 515-221-2258 or Call 1-800-523-7638** CE678

Name \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City/St./Zip \_\_\_\_\_  
Phone \_\_\_\_\_  
Fax \_\_\_\_\_

☐ Charge \$9.95 for shipping & handling for CD-ROM\*

☐ Charge \$19.95 for shipping & handling for Disk Package\*\*

☐ MasterCard   ☐ VISA   ☐ AMEX

Card # \_\_\_\_\_ Exp. Date \_\_\_\_\_

Cardholder Signature \_\_\_\_\_

Offer expires June 2, 1995

\*Each CD-ROM includes all software that is standard in QuickMail packages and allows you to set up three full working users. \*\*The disk package includes all QuickMail software and documentation, but does not contain the additional software found on CD-ROM. Current QuickMail customers are not eligible for this CD-ROM promotion. Offer valid only in the United States and Canada. Limit one CD-ROM per location. ©1995 CE Software, Inc. QuickMail is a trademark of CE Software, Inc. All other trademarks or registered trademarks are the sole property of their respective companies.

**Circle 170 on reader service card**





# AnthroCarts®

AnthroCarts will knock your socks off! Imagine how great it'll be when you find the perfect furniture for your equipment — just the right size, tough as nails construction and dozens of accessories.

And you'll find our service so real and responsive, you'll get a kick out of ordering direct!

Call for a free catalog!



Lifetime Warranty.



Adjustable for all sizes.



Lots of choices.

**800-325-3841**

6:00 AM to 6:00 PM PST, M-F

e-mail: [sales@anthro.com](mailto:sales@anthro.com)



10450 SW Manhasset Drive  
Tualatin Oregon 97062  
Phone: (503) 691-2556  
Fax: (800) 325-0045

GSA contract no. GS-OOF-5040A. Available for OEM applications. Prices from \$159.00  
Anthro, AnthroCart and Technology Furniture are registered trademarks of Anthro.

## USING PRINTER FONTS

The following are some tips for dealing with PostScript printer fonts.

- **Download often-used fonts manually.** If you frequently use downloadable fonts (ones not built into a printer), you can significantly boost printing times and cut network traffic by using a utility such as Apple's Printer Utility or LaserWriter Utility (both provided with Apple PostScript printers) to download often-used fonts at the beginning of the day. (I've included a shareware font downloader in the Macworld areas of AOL and eWorld.)

- **Connect a hard drive to your printer if it supports one.** Copy downloadable fonts to the printer's hard drive, and the printer can retrieve them almost instantly. A dedicated hard drive boosts the printer's overall performance, too.

- **Consider converting TrueType fonts to PostScript format.** If your printer doesn't contain the TrueType rasterizing software—many non-Apple PostScript printers do not—TrueType fonts will print more slowly than their PostScript counterparts. You can fix this by using Macromedia's Metamorphosis Professional 2.04 (\$149; 415/252-2000) to convert TrueType fonts into Type 1 fonts.

ware, 503/274-2800), can reunite font styles and also display font names in their actual typefaces (an option I don't like because it makes Font menus slower to appear).

Incidentally, while sniffing around on America Online, I found a file describing some interesting modifications you can make to Adobe Type Reunion using Apple's ResEdit utility. I've included this file in the software libraries in Macworld areas of AOL and eWorld. **m**

Next month: Connecting to DOS/Windows printers

Contributing editor JIM HEID's *Macworld Complete Mac Handbook Plus Interactive CD*, third edition, and *Macworld Ultimate Mac CD-ROM* (both from IDG Books Worldwide, 1994) each include over 100 PostScript and TrueType fonts with font utilities.



1000  
EXHIBIT  
EXPO



# YOUR BEST CONNECTION TO NEW TECH- NOLOGY

MAY 3RD AND 4TH

MINNEAPOLIS CONVENTION CENTER

## IT SHOWCASE

OPEN SYSTEMS  
NETWORK COMPUTING  
WINDOWS  
ACCOUNTING

NOTEBOOK COMPUTING  
INTERNET CONNECTIVITY  
MAC-BASED COMPUTING  
HOME OFFICE

## DIGITAL PREPRESS/PRINTING SHOWCASE

DESKTOP PUBLISHING  
GRAPHIC DESIGN  
ELECTRONIC PREPRESS  
ON DEMAND

MULTIMEDIA  
PRINTING  
BINDERY

## NEW

**CAREERS IN TECHNOLOGY.** Presented in part by **StarTribune**

100+ companies are offering their best technical jobs to professionals in the Midwest. Admission is FREE.

See the complete guide to Careers In Technology in a Star Tribune special section Sunday, April 30 and in TCX on Friday, April 28.

## SPECIAL KEYNOTE SPEAKER

Jim Buckley, President, Apple Computer

## FEATURED CONFERENCES

- 48th Annual Information Systems Conference for the Association for Systems Management (ASM)
- 17th Annual Minnesota Joint Computer Conference (MJCC) with the Minnesota Software Association (MSA), Twin Cities ASM, Independent Computer Consultants Assoc. (ICCA), the Institute of Electrical & Electronic Engineers Computer Society (IEEE) and Assoc. of Computing Machinery (ACM)
- Minnesota Society of CPA Information Technology Conference

**ADMISSION AT THE DOOR \$15/PERSON**  
**ADMISSION IS FREE TO CAREERS IN TECHNOLOGY**  
**FOR INFORMATION CALL 612.894.8007**

INTERNET: [SBCGE@THE-LINK.COM](mailto:SBCGE@THE-LINK.COM)  
SHOW HOURS 10 AM - 6 PM DAILY

THE LINK. OFFICIAL INTERNET ACCESS PROVIDER.

## SPONSORED BY

WCCO NEWS TALK 8.3.0

## IN ASSOCIATION WITH

Macworld  
THE MACINTOSH AUTHORITY

## SPECIAL MANUFACTURER PAVILIONS

Apple Computer, Inc. IBM

NOVELL Microsoft

hp HEWLETT  
PACKARD

Lotus

THE THIRTEENTH ANNUAL

# STRICTLY BUSINESS<sup>®</sup>

COMPUTER & GRAPHICS EXPO

All event collateral designed and produced by CTS Creative Graphics



# DV EXPO

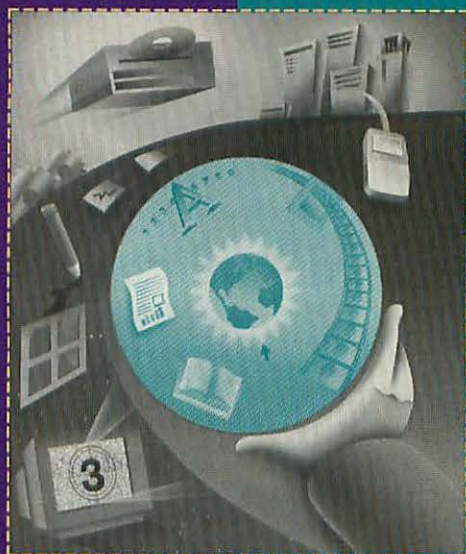
## DV EXPO AND CONFERENCE

- For Advertising Agencies, Production Houses or any organization or individual who wants to get involved in Digital Technology and needs to know what all the components are and how to put them all together.
- Plan your strategy based on first-hand information from industry leaders.
- See the hottest digital video tools on the exhibit floor and learn how to use them.
- From hands-on workshops to in-depth discussions of technical issues and industry standards, the conference program will cover the tools, the content and the delivery of digital video by the professionals using it successfully today.

**DV  
EXPO**

sponsored by

**DV**



# CD-ROM EXPO

## CD-ROM EXPO AND CONFERENCE

- For Publishers, Marketing Directors, New Product Developers, or anyone seriously pursuing CD-ROM as a distribution medium.
- Find out answers to critical issues such as: What programs are most suitable for CD-ROM distribution? How can you maximize your CD-ROM product's marketability? What are the steps and costs involved in publishing a top-quality CD-ROM?
- Explore the nation's most comprehensive Expo dedicated to CD-ROM technology—save months of research time.
- Learn firsthand from leading industry experts about a wide variety of CD-ROM applications, including training, sales, marketing, advertising, technical support and documentation, archiving and much, much more!

**CD-ROM  
EXPO**

sponsored by

**CD-ROM**

## TWO GREAT EVENTS IN ONE NEW LOCATION!

### NEW EVENT DV Expo and CD-ROM Expo

**NEW DATES**  
Exhibits: November 29-30, 1995  
Conferences: November 28-30, 1995

**NEW LOCATION**  
New York Hilton Hotel & Towers  
New York, New York

**FOR MORE INFORMATION CALL 1-800-945-3313**

### Send me more information on DV Expo and CD-ROM Expo.

I am interested in: ☐ Attending ☐ Exhibiting

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

Mail to: Mitch Hall Associates, 260 Milton St., Dedham, MA 02026  
Or Fax to: 617-361-3389 Phone: 617-361-8000

MACWORLD





BY LON POOLE

# Quick Tips

## Tips, Tricks, and Shortcuts

YOU CAN CHANGE THE BACKGROUND pattern of System 7.5 utility windows such as Find File, Calculator, and Scrapbook. Gary Stahara of Arvada, Colorado, suggests the following method: Open the Desktop Patterns control panel, and scroll to find a pattern you like. Press option to change the Set Desktop Pattern button to Set Utilities Pattern, and click that button. Whatever pattern you set will be used for all the utility windows.

You can add a new pattern by copying a computer-generated, scanned, clip-art, or Photo CD image and pasting it into Desktop Patterns. (The source program must copy the picture in a format that can be seen with the Show Clipboard command in the Finder's Edit menu.) For detailed instructions, see "How do I change the background pattern?" in System 7's Macintosh Guide, which is located in System 7.5's Guide menu (previously known as the Help menu). Similarly, you can copy the currently visible pattern from Desktop Patterns and paste it into a paint program for editing. If your graphics program works with System 7.5's drag-and-drop editing, you can drag a selected image from the graphics program to Desktop Patterns and vice versa.

### Whence Espy

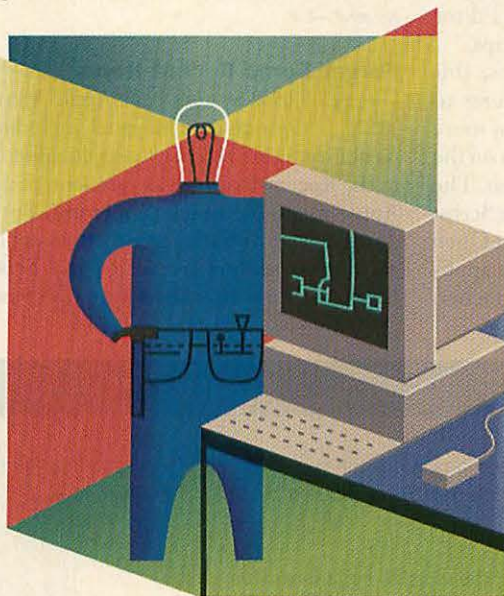
**Q.** Two bitmap fonts, Espy Sans and Espy Bold, are available and usable in some of my applications. They are not listed in the Fonts folder, and the Find command cannot locate them. How is that possible, and how can I trash them?

*Samuel Zelman  
Topeka, Kansas*

**A.** Those fonts are inside a font suitcase named eWorld Fonts, which was placed in your Fonts folder when you installed eWorld. Keep the fonts if you still use eWorld. Otherwise you can drag

that font suitcase to the Trash. If you were a developer of software for the Newton, you would also find the Espy fonts inside a font suitcase named Newton Toolkit Fonts in your Fonts folder.

The Find command and System 7.5's Find File utility don't search suitcase files for individual font files. If the suitcase's name is not similar to the names of the fonts inside it, Find and Find File won't locate the font. To find hidden font files, open each suitcase and scan its contents.



### Missing Speech Manager

**Q.** I installed System 7.5 and now I can't find Speech Manager. Where is it? Speech recognition and text-to-speech don't work when I install them from my System 7.1 CD.

*Donald M. McCarter  
Bethesda, Maryland*

**A.** System 7.5 requires PlainTalk 1.3. It's one of many extras you get with the CD-ROM version of System 7.5

but not with the floppy disk version. You can request the five PlainTalk 1.3 installation disks from the Apple Assistance Center (800/767-2775), or you can get PlainTalk via eWorld (in the Apple Customer Center), AppleLink (in the Software Sampler folder), or one of Apple's Internet FTP servers, such as ftp.info.apple.com (in the Apple.Support.Area directory) or ftp.support.apple.com (in the pub directory). In all of these online sources, the folder path is Apple Software Updates: Macintosh: System Software: PlainTalk 1.3. Earlier versions of PlainTalk are also available online. PlainTalk 1.2.1 is for Power Macs running System 7.1.2, and PlainTalk 1.0 is for 660AV and 840AV Macs with System 7.1.X.

### Damage Control

**Q.** When I turn on my Performa 450, I get an error message stating that Launcher could not be opened because an error of type -39 occurred. Why is this happening?

*Kevin L. McDonald  
Merrillville, Indiana*

**A.** Error -39 means the end of a file unexpectedly and is a sign of file damage. Try dragging Launcher Preferences from the Preferences folder to the Trash and restarting. If the problem persists, get a clean copy of Launcher from the backup disks you made when you got the Performa. Can't find your backup disks? Throw yourself on the mercy of the Apple Assistance Center (800/767-2775) and ask for Performa system software.



ware installation disks. Or upgrade to System 7.5, which contains a new version of the Launcher.

### Launcher Additions

**TIP** To add an item to the Launcher control panel, you ordinarily have to make an alias of the item and drag the alias to the Launcher Items folder in the System Folder. You can use the Script Editor program that comes with the System 7.5 CD-ROM to create an AppleScript application that does most of the work for you. Follow these steps:

1. Open the Script Editor, and in the bottom panel of a new script window, type the script exactly as shown in "Launcher Genie." Where you see the continuation symbol (~) type option-return. You can type anything in the description box at the top of the script window, or leave the description box empty.

2. Click the Check Syntax button to have Script Editor look for mistakes in your script. If it can't make sense of some part of your script, it describes the problem. Otherwise it changes the font from Courier to Geneva and makes command words bold, indicating the script was compiled without error.

3. Save the script, choosing Application from the Kind pop-up menu in the Save dialog box. This causes Script Editor to create an application for the script.

There are two ways you can use this AppleScript application to add items to the Launcher. One is to drop one or more documents, folders, or applications on the icon of your AppleScript application. The other is to double-click the AppleScript application, bringing up a standard Open dialog box in which you choose an application you want to add to the Launcher.

Either way, use actual applications or other items, not aliases, because the script creates aliases for you.

Clint Beilman  
Casselberry, Florida

This script won't be very useful if you have grouped Launcher items by placing them in specially named subfolders of the Launcher Items folder (as described in the Macintosh Guide topic "How do I group items in the Launcher?"). That's because the script always places items in the Launcher Items folder itself, not in specially named subfolders. You can work around this problem by making a special version of the script for each subfolder. For example, inserting the line

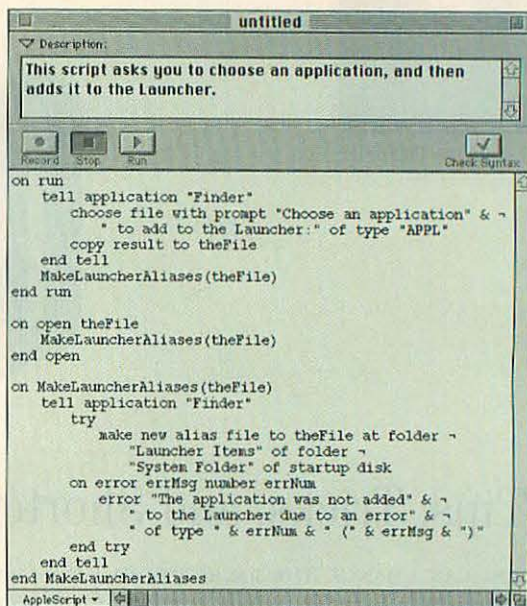
"•Priority Documents" of folder ~

after the line beginning "make new alias file" would modify the script to add items to the •Priority Documents subfolder. For more information on AppleScript, get *The Complete AppleScript Handbook*, second edition, by Danny Goodman (Random House, 1995), or *The Tao of AppleScript*, second edition, by Derrick Schneider (Hayden Books, 1994).

Multiple scripts are not going to be as efficient as the scriptless trick that is illustrated in "Launcher Access."—L.P.

### Forget Some Recent Items

**TIP** I love System 7.5's Apple Menu Options control panel, including its ability to list recently used documents in the Recent Documents submenu of the Apple menu for quick reopening. But I don't need it to track recently used applications or servers because I use Scott Johnson's PowerBar shareware [the pow-



**Launcher Genie** This AppleScript script makes aliases of applications directly within the Launcher Items folder, so you can launch the applications from the Launcher control panel. You can either drag applications to the script's icon or you can open the script's icon and choose an application from a standard Open dialog box.

er user's Launcher] to launch applications and am not connected to any servers. I discovered that if I set the number of applications and the number of servers both to zero in the Apple Menu Options control panel, the Recent Applications and Recent Servers items disappear.

Victor H. Gajewski  
Manteca, California

### Stopping a Start-up Movie

**TIP** I made a long QuickTime movie from some CD-ROM clips, named the movie Startup Movie, and placed it in the System Folder so it plays

## FLARED TYPE

**H**ere is a simple step-by-step procedure for making flared type in Adobe Illustrator 5.0 or 5.5, contributed by Greg Hervey of Austin, Texas.

1. Begin by creating outlines of the word to be manipulated.

ROTTWEILER

2. Scale the outlines to about 50 percent vertically.

ROTTWEILER

3. Using the Free Distort filter, pull one corner of the word down slightly.

ROTTWEILER

4. Apply the filter several more times to give the line of letters a curved look.

ROTTWEILER

5. To make the type arch symmetrically, distort half the word as described above, and then do the opposite distortion on the other half of the word.

ROTTWEILER



when I start up my Mac. When I'm in a hurry and don't want to wait for the whole start-up movie to finish, I press the spacebar to stop it.

S. Fawad Sayeed  
Elmhurst, Illinois

As with any copyrighted material, movie clips from a CD should not be copied or altered without the copyright holder's permission.—L.P.

## Extra Drive

**TIP** If you want to fix or optimize your only hard drive with a utility program that can't be run from the drive it's working on (and won't fit on a floppy), use a RAM disk as follows:

1. Create a floppy start-up disk with the bare minimum System Folder. You can do this by copying the System Folder from the Disk Utilities floppy that came with your Mac. If your Mac came with a CD-ROM and no floppies, use the Disk Utilities disk image on the CD to make a Disk Utilities floppy.

2. Place the Memory control panel in the floppy's System Folder.

3. Use the Memory control panel to create a RAM disk just the size of the application you need to use. After you restart the computer, the RAM disk will use part of the computer's RAM as if it were a disk drive.

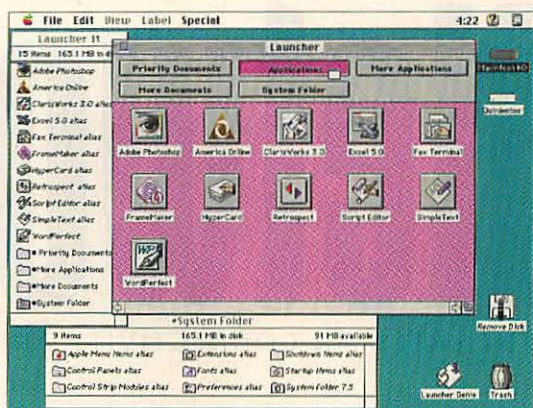
4. Restart, copy the utility program you need from the hard drive to the RAM disk, and launch the program from the RAM disk.

There you have it. The application runs from the RAM disk, and the floppy is your start-up disk. (Of course if you have lots of RAM you don't need the floppy. Skip steps 1 and 2. In step 3, create a RAM disk large enough for a System Folder and the application you need, and copy them both to the RAM disk in step 4. Before launching the program, use the Startup Disk control panel to make the RAM disk the start-up disk and restart once more.) The RAM Disk feature is not available on all Mac models and with all versions of the system software. If it is not available on your computer, your Memory control panel will not have settings for it and you can't use this tip.

Marcos Huerta  
Lake Jackson, Texas

## Outside Signs

**TIP** Here's a handy little trick I used recently to make a small sign to post outdoors. Design a sign smaller than



**Launcher Access** System 7.5's Launcher control panel is more useful if you group items in it by placing them in specially named folders inside the Launcher Items folder. To simplify opening the folder that defines a group so you can add items to it or remove items from it, use the trick suggested by Brian Shapiro of Farmington Hills, Michigan: option-click the group's button. The cursor looks like a folder when it is over the Launcher's buttons with the option key pressed. %option-clicking the gray area between buttons brings up a Launcher credits screen (not shown).

8½ by 11 inches in a drawing program. Before printing on a sheet of overhead film, click the Options button in the Page Setup dialog box and flip the image horizontally to make the sign print backwards. After printing, spray the side that has toner on it with white or light-colored spray paint. Flip it over, cut it out, and affix it with thumbtacks. Now you have a small sign that's pretty much weatherproof. Using this technique you could give the old No Soliciting sign some new character by creating one with a new typeface. You could even spray-glue a couple of catchy Garage Sale signs onto Gator-board (heavy mounting board) so they'd hold up in the rain.

Brian White  
Houston, Texas

## Sound Follow-up

The 660AV, 840AV, and Power Macs can record stereo, as I mentioned in February's *Quick Tips*. So can the PowerBook 500-series Macs, notes Hector Levesque of Toronto, Ontario. **m**

We pay from \$25 to \$100 for tips published here. Send questions or tips on how to use Mac computers, peripherals, or software (by mail or electronically) to *Quick Tips*, Lon Poole, at the address listed in *How to Contact Macworld* at the front of the magazine (include your address and phone number). All published submissions become the property of *Macworld*. Due to the high volume of mail received, we're unable to provide personal responses.

LON POOLE answers readers' questions and selects reader-submitted tips for this monthly column. His latest book is *Macworld System 7.5 Bible*, third edition (IDG Books Worldwide, 1994).

# QuickKeys

## Work Smarter And Faster In All Your Favorite Macintosh Applications!



Get the #1 productivity tool for Macintosh! We guarantee you'll save time and money, increase productivity and do what you need to do faster than ever before. For example, with a single keystroke QuickKeys can instantly ...

- Type your name and address
- Date and time stamp documents
- Select different printers
- Log on or off network servers
- And on and on and on ...

**QuickKeys works with any Macintosh application including:**

- Quark Xpress®
- Adobe Illustrator®
- FileMaker Pro®
- Aldus PageMaker®
- MS Word®, Excel®, etc.
- And on and on ...



## An Irresistible Offer!

Order today and we'll send you the "QuickKeys 3 Book" by Steve Roth and Don

Sellers FREE. It's packed with QuickKeys hints, tips and tricks.

**A \$22.95 value FREE if you ORDER NOW!**



**Order NOW! Call 1-800-523-7638  
Or Fax 515-221-2258 CE664**

Name \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City/State/Zip \_\_\_\_\_  
Phone \_\_\_\_\_ Fax \_\_\_\_\_  
Card # \_\_\_\_\_ Exp. Date \_\_\_\_\_  
Cardholder Signature \_\_\_\_\_

	Quantity
Price	\$89.95
+ Shipping*	
+ State Sales Tax**	
<b>Total</b>	

**Order Today And Receive  
The QuickKeys 3 Book  
Absolutely FREE!**



\*Shipping & Handling: U.S. \$5,  
Canada and Mexico \$10, Other  
International \$25 \*\*Sales Tax:  
Residents of CA, GA, IL, IN, & MA  
must add appropriate state sales tax.  
Offer is Valid Only With Coupon.  
Offer Expires June 30, 1995.

**CE SOFTWARE**  
RESELLERS: CALL 1-800-523-7638 EXT 3076 FOR  
INFO ON QUICKKEYS SPECIALS IN DISTRIBUTION

©1995 CE Software, Inc. CE Software, and the CE Software logo are trademarks of CE Software, Inc. QuickKeys is a registered trademark of CE Software, Inc. All other brand or product names are trademarks or registered trademarks of their respective holders.

**Circle 171 on reader service card**



# Networks

THE LATEST IN CONNECTIVITY AND COMMUNICATIONS

## Apple Outlines PowerTalk Plans

**I**N 1993 WHEN APPLE INTRODUCED THE first components of Apple Open Collaboration Environment (AOCE)—System 7 Pro (with PowerTalk system extensions) and the PowerShare Collaboration Server (\$999)—they were greeted, as one third-party developer puts it, with a giant yawn.

Now that PowerTalk version 1.1 ships with System 7.5, its installed base and consequently its development priority at Apple have significantly increased. As a result, Apple has outlined an ambitious agenda to eliminate weaknesses, such as an anemic mail client and high memory requirements, and to add functionality, such as built-in Internet support. Just as Apple used AppleShare and personal file sharing to integrate file services into its operating system, the company has a long-term goal to use PowerShare and PowerTalk to integrate mail and directory services into the operating system.

The first step is to publish APIs (application programming interfaces) for PowerTalk, which Apple intends to provide this spring. The PowerTalk Mailbox API, which will support Apple-events scripting, will enable other developers to produce alternate PowerTalk clients as well as rules-based software and message-conversion utilities (for example, text-to-speech software). In fact, as Apple includes more E-mail services in the operating system, the opportunities for third-party mail vendors will be in these types of value-added products, as well as in mail-enabled applications.

In late summer Apple plans to ship an incremental upgrade of PowerShare, migration tools for Microsoft Mail for AppleTalk users, and a PowerShare Windows client. PowerShare 1.X will have improved support for SMTP and UUCP. Microsoft Mail migration tools will en-



able users to import Mail directories and mail to PowerShare. (Microsoft no longer sells a Macintosh server for Mail.) The Windows client will let Windows applications that comply with Microsoft's MAPI (Messaging API) access PowerShare mail and directories.

Apple plans to release major upgrades of PowerShare and PowerTalk along with the shipment of the next-generation system software release, code-named Copland, scheduled for mid-1996 (see "Copland: Rebuilding the Mac OS" in *News*, April 1995). However, it's possible that Apple might release some of the planned improvements as they become available rather than wait for Copland.

PowerShare 2.0 will include an enhanced administration program, better system monitoring, live backup, server-to-server dial-up, and built-in gateways to

SMTP, X.400, and NetWare. Apple plans to eventually use one set of administration tools and one directory structure for both PowerShare and AppleShare.

The next major release of PowerTalk will include gateways to NetWare, including MHS and NetWare Directory Services; Unix, including POP, MIME, and SMTP; and public services, including the Internet, fax systems, pagers, and eWorld. (For more about Internet connectivity and operating systems, see "Internet in the OS," in *News*, this issue.)

PowerTalk for Copland will take advantage of Copland's file structure and the native AppleTalk provided by Open Transport to achieve performance gains. A new memory-management scheme will allow users to load PowerTalk as modules. Apple Computer, 408/966-1010.

—E.D.



# StarNine Fills the E-Mail Gap

**T**HIS SPRING, STARNINE TECHNOLOGIES plans to ship the final pieces necessary to turn a Macintosh into a full-fledged Internet information server. StarNine's EMail-On-Demand (eMOD), modeled on Internet mail processors such

as Listserv, lets a Mac act as a central repository for mailing lists and automated information systems.

eMOD supports both simple mailing-list operations (including automated subscription) and more-powerful functions. Using rules, eMOD interprets incoming E-mail and can then take some action.

eMOD connects to QuickMail, Microsoft Mail, or SMTP E-mail systems, or it can receive E-mail directly from the Internet. Pricing was not set at press time, but the company expects eMOD to cost less than \$1000. StarNine Technologies, 510/649-4949.

—JOEL M. SNYDER

## Ethernet Hubs for Less

**A**LTHOUGH THE BUZZ IN NETWORKING circles favors switches right now, there's still a place for hubs in workgroups that don't require dedicated bandwidth—and hub makers are now competing aggressively for that niche.

Asanté Technologies has revamped its unmanaged Ethernet hubs to make them smaller and less expensive—as low as \$21 per port on the street—and easier to locate on the desktop or on the wall, in the wiring closet or in a cubicle. The three 10T Hub models (\$249 to \$749) have 8, 10, or 24 ports; they all support RJ-45, AUI, and BNC connectors.

Dayna Communications has also shrunk its DaynaStar \$189 MiniHub-5 and \$239 MiniHub-8 hubs, adding diagnostic front-panel lights.

Farallon Computing has reduced prices for its Ether10-T Starlet line of three 10BaseT hubs, which have street prices from about \$140 (with 4 ports) to \$490 (with 12 ports).

Asanté Technologies, 408/435-8388; Dayna Communications, 801/269-7200; Farallon Computing, 510/814-5100.

—NANCY E. DUNN



The DaynaStar MiniHub-5 (top) takes up little more space than a stack of index cards, and Asanté's 10T Hub/24 about twice that amount.

## ATM Alternative

**T**WO SUPPLIERS HAVE JOINED FORCES to offer Asynchronous Transfer Mode (ATM) capabilities to the desktop at rock-bottom prices. Based on technology from Tut Systems and hardware from UB Networks, the new solution runs ATM at up to 155 Mbps over the Category 3 unshielded twisted-pair wiring commonly used for Ethernet networks. UB Networks' products using Tut's technology slated to appear this spring include PCI-bus ATM adapter cards and a new version of its GeoSwitch ATM switch, which will be priced similarly to the fiber version at \$995 per port.

Tut's technology provides a way to migrate networks to higher speeds without the expense of new wiring but doesn't adhere to today's ATM standards and can transmit signals for only 200 feet. Tut Systems, 510/682-6510; UB Networks, 408/496-0111.—MARTHA STRIZICH

## Fast Ethernet Gets Real

**T**WO COMPANIES ARE MAKING FAST Ethernet a network reality by shipping 100-Mbps switching hubs and related products.

Grand Junction is shipping a line of hubs, switches, and repeaters based on the nearly final 100BaseT standard. The company's FastSwitch family of workgroup switches support 25 users with 10-Mbps links (\$6250 to \$9350), with from one to five 100-Mbps links. Two models come with two expansion slots for plug-and-play modules (\$495 to \$2495) for dif-

### IN BRIEF

#### NetWare Delayed

If you've been holding your breath waiting for the ultimate Macintosh version of Novell's NetWare, it's time to exhale. Apple Computer and Novell have once again pushed back the expected ship date of their joint development of NetWare for Power Mac. Now slated for fall 1995, the eventual result will be a native Power Mac version of Novell's popular network operating system (for more about NetWare, see *Networks* news, February 1995). Apple, 408/862-3385.

#### SNAPS Update

Wall Data, which acquired Apple's SNAPS line, is adding APPC-based file transfer to its SNAPS 5250 Gateway client (\$125). With APPC tools, the client opens a dedicated session on the AS/400 for file transfers. Its SNAPS Gateway server software now provides shared-folder services to Macintosh users via SNAPS Folders 400 (\$900), which creates AppleShare-like volumes for files. 206/814-9255.

ferent media. The first modules support 100BaseT unshielded twisted-pair and 100BaseT fiber connections. The company expects to ship a module for FDDI in the third quarter of 1995 and an ATM version in 1996.

Grand Junction's full-duplex option supports up to 200-Mbps throughput.

Network Resources Corporation's Ethernet switching hub, the MultiGate Switch, can reallocate bandwidth while it's running. The \$7995 switch delivers 10 Mbps to 12 ports, plus a 100-Mbps connection to a backbone or a server. The switch runs two 33MHz 68040 processors, with 1.2GB of shared memory. The MultiGate Switch accommodates any mix of 10BaseT, 10Base2, and 10BaseF slide-in modules (\$195 to \$395). It also supports FDDI, Fast Ethernet (both 100BaseT and 100VG-AnyLAN), and ATM. Management options include SNMP software for the Mac.

To take advantage of the 100-Mbps connections, Macs need a Fast Ethernet card, such as those described in *Networks* news, *Macworld*, April 1995.

Grand Junction, 510/252-0726; Network Resources, 408/383-9300.

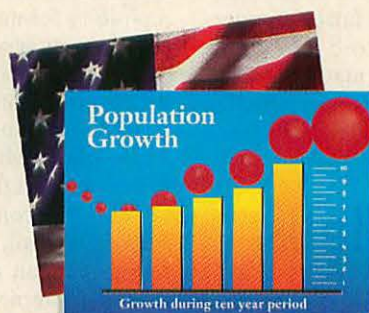
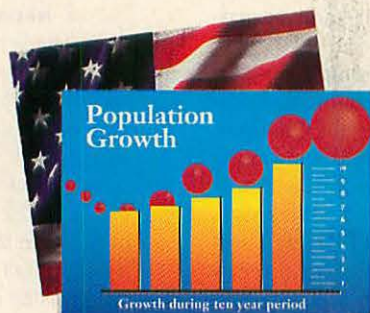
—NANCY E. DUNN



# Now, The Best Color Printer is \$1,000 Less!



**Spectra\*Star**



**Tektronix**

**FREE**

with this ad

**Ethernet LAN Cartridge\***  
(offer expires May 30, 1995)

**The Two Best PostScript Printers Available  
Both Use the Same Engine & Produce the  
Highest Quality Output You Can Buy.**

For color thermal printing Spectra\*Star GTx wins over the Tektronix 220i in price, speed and features. For continuous tone dye sublimation color printing Spectra\*Star DSx has 600 dpi and other features not found in the Tektronix 440. Both Spectra\*Star printers offer two built-in cartridge slots to make future expandability simple.

**And Spectra\*Star Costs \$1,000 Less Than Tektronix!**

call for free sample

**1(800)223-0999** Fax: 1(510) 524-9954

**Spectra\*Star**  
from General Parametrics

\*With purchase of a Spectra\*Star GTx or DSx printer. Other rules apply. • Dealer Inquiries Invited

Circle 237 on reader service card

## At Last! The Definitive Reference to Image Editing with Adobe Photoshop 2.5

**National Bestseller**

16-Page  
Full Color  
Photoshop  
Gallery  
Inside!



**MACWORLD PHOTOSHOP 2.5 BIBLE** GUIDES YOU EXPERTLY THROUGH  
ELECTRONIC PAINTING, RETOUCHING, SPECIAL EFFECTS, AND MORE!

**N**ow even novices can explore the creative possibilities of this highly sophisticated graphic design program in a book written expressly for Photoshop 2.5. Author Deke McClelland draws on years of hands-on experience to guide you from Photoshop fundamentals through the most advanced techniques, including retouching and complex electronic imaging. Concise, well-organized chapters cover key topics such as getting the most out of Photoshop;

working with image file formats; resampling and cropping; paint and edit tool basics; color manipulations, and more. Get the *Macworld Photoshop 2.5 Bible*, the only Photoshop book officially authorized by *Macworld* magazine, and see what great things you can do with this leading design program!

A contributing editor to *Macworld* magazine, Deke McClelland also writes for *PC World* and *Publish*. He has authored nearly 30 books on desktop publishing and computers.

ISBN: 1-56884-022-5  
**\$29.95 USA/\$39.95 Canada**  
680 pages

Now  
Covers  
Photoshop  
2.5.1



IDG Books Worldwide, Inc.  
155 Bovet Road, Suite 310, San Mateo, CA 94402  
(800) 762-2974, (415) 312-0600 Fax (415) 358-1260

**30 Day No Risk  
Guarantee**

Try this book for 30 days at absolutely no risk. If it doesn't help you get more out of Photoshop, return it for a full refund.

**Order Risk-Free: 1-800-762-2974**

For fastest service, fax your order to (415) 358-1260. Phone 8am to 5pm, PT, or complete and mail the order form. Also available wherever computer books are sold.

**Yes! Please send me:**

	Qty.	Price	Total
Macworld Photoshop 2.5 Bible		\$29.95	
UPS shipping & handling, add		4.95/book	
Requires instant cash delivery at extra charge		Rush	
CA residents add applicable county tax, 1% & 1% residents add 0.25% tax, 1% residents add 7% tax, 1% residents add 0.25% tax. Canadian residents add 7% GST tax.		Tax	
		Total	

**I Wish to Pay by:**

- ☐ Check  
☐ Visa/MC  
☐ Amex  
No C.O.D., U.S. funds only; payment must accompany order.

Card No. (include all numbers)	Exp. Date
Signature (necessary to be valid)	
Name	Company
Street	City
State	Zip
Area Code	Phone Number

For volume discounts and special orders, please call Tony Reel, Special Sales, at 415-312-0844.

MVB94





BY CARY LU

# PowerBook Notes

## The Multimedia PowerBook

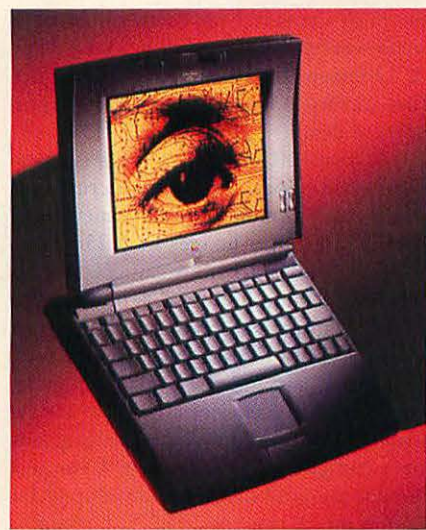
A POWERBOOK CANNOT MATCH THE multimedia capabilities of a desktop Mac. PowerBooks don't have the built-in hardware or expansion features—particularly video input—that make multimedia easy. The PowerBooks 140, 145, 145B, and 170 can handle sound but not pictures because they lack gray-scale displays. Neither the PowerBook 100 nor the 150 can record sound effectively. And none of these models can output video. However, most PowerBooks can perform key multimedia functions.

### Showing Pictures

The 160, 165c, 180/180c, the Duos, and the 500 series can display pictures readily; 16-bit gray scale does a decent enough job for pictures, although the color PowerBooks certainly do better. For group viewing, an active matrix screen helps; an external color monitor does best. All PowerBooks with a video port will drive a 16-/17-inch monitor with 256 colors (832 by 624 pixels); the 500 series can also support 1024 by 768 pixels at 16 colors on a multisynchronous VGA monitor. (Hold down the option key when clicking on display options.) Only a Duo—through a dock—supports external monitors with more than 256 colors.

A PowerBook with a video-output port can drive virtually all projection panels designed for computers; in some cases you'll need a VGA adapter, about \$10. A Mac video-to-TV scan converter can put Mac images on a TV screen. In *The Desktop Critic*, *Macworld*, January 1995, David Pogue reviewed seven models and liked the \$159 MediNet Encoder (P2 Systems, 206/525-2081) and the \$229.99 L-TV Portable (Focus Enhancements, 617/938-8088). Two additional scan converters are worth noting. The moderately expensive \$429 Presenter 3 from Consumer Technology Northwest (503/643-1662) produces an excellent image. High-quality TV monitors with a Y/C (S-Video) input can display 12-point fonts legibly; monitors with a standard composite input

(RCA-style plug) show considerably more color noise but will suffice for typical graphics. The \$799.95 TelevEyes/Pro from Digital Vision (617/329-5400) can put an 800-by-600-pixel image on a TV (using the Super VGA mode of a PowerBook that has video output), giving you more working space, although small text isn't legible. The TelevEyes/Pro has gen-



locking, so its output can be combined with other images for video production.

### Capturing Pictures

When it comes to capturing pictures, you have many choices, but the cheapest is via a fax machine. You'll need two phone lines; fax the image to your modem. You can avoid the phone call with the \$49.95 FaxScanner from SVA Software (305/446-9905), a small interface box powered by a 9-volt battery that simulates a phone-line connection. Fax machines don't produce high-quality scans, and many cannot handle grays; those that do produce grays by dithering—scattering black pixels to simulate grays.

Two companies make small portable scanners that are light enough to take on the road; both require AC power. The

\$399 Visioneer PaperPort (415/812-6400) connects to the serial port. Its bundled software emphasizes text-document management more than graphics and works very well for capturing pages and faxing; it's a pity that the mechanism is a simple 200-dpi manual-feed fax scanner. Like a fax machine, it simulates grays by dithering. The somewhat larger and far more capable \$499 ScanPartner Jr. from Fujitsu Computer Products (408/432-6333) captures 256 grays at 300 dpi and includes a ten-page sheet feeder, but its conventional driver software lacks the easy functionality of the PaperPort.

If you want to take a picture rather than scan a page, then the QuickCam from Connectix Corporation (415/571-5100) is the easiest and least expensive way. Typically selling for about \$100, the tennis-ball-size QuickCam has a fixed-focus wide-angle lens (65-degree angle of view, comparable to a 35mm lens on a 35mm camera) producing 320-by-240-pixel still images with 16 grays. The QuickCam connects to and gets its power from the serial port of any PowerBook (except the 100). Some 500-series PowerBooks need a \$9.95 patch cord that takes the power from the ADB port instead. The serial-port tether means you won't have the picture-taking freedom of a camera. The QuickCam cannot digitize a video signal, but it can take somewhat stilted QuickTime movies in the small 160-by-120-pixel size. Brightness is the only control you get. The results won't win any photography awards, but the QuickCam is adequate for casual use. Connectix should have a color version later this year (for more on the QuickCam, see *Reviews*, *Macworld*, March 1995).

For larger, higher-quality picture taking, you'll have to spend much more on either a digital still camera or a video digitizer, which converts a standard television signal into digital form.

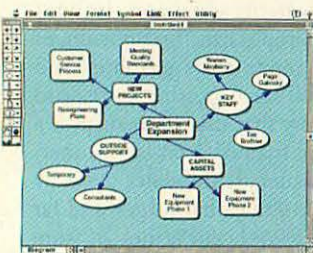
Digital Vision sells the \$599.95 ComputerEyes/RT, a video digitizer that

*continues*



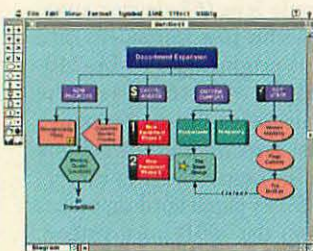
# Instantly Visualize Concepts...

Getting started is often the most difficult part of clarifying an idea or developing a plan or concept. The next time you begin to work use Inspiration®—the real-time idea development tool for clarifying and organizing your thoughts.



Instantly Rapid-Fire™ out your ideas and see your thinking take form.

At any time, flip to Inspiration's fully integrated Outline View to further organize and write.



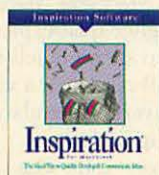
Powerful features such as auto-arrange and over 500 symbols help you quickly transform ideas into time presentation visuals.

Call (800)877-4292 for your

**FREE DEMO**

& Idea Book

# Inspiration®



Inspiration Software®, Inc.  
503.245.9011 Tel. • 503.246.4292 Fax

©1995 Inspiration Software®, Inc.

## NETWORKS: POWERBOOK NOTES

connects to any PowerBook through the SCSI port and can capture full-screen images in 24-bit color; its frame grabber can extract stills from moving video images. The RT also produces color QuickTime movies—at up to 12 frames per second at 160 by 120 pixels on a 500-series PowerBook, about 6 frames per second at the larger 320-by-240-pixel size. Although the RT can display a live video image, its slow frame rate makes it unsuitable for use as a television monitor. The ComputerEyes/RT requires AC power.

### Digital Cameras

Digital cameras work without a computer, storing images in RAM, on a built-in disk drive, or on PCMCIA cards. Some cameras, such as Canon's discontinued Xapshot, output an analog video signal, requiring a video digitizer. The more interesting cameras send digital images directly to a serial or SCSI port.

The \$699 Apple QuickTake 100, a simple point-and-shoot camera with a fixed-focus lens and built-in flash, connects to the serial port and can store 8 images at 640 by 480 pixels in 24-bit color or 32 images at 320 by 240 pixels. Its picture quality is fair; color noise mars fine vertical detail.

Dycam (818/407-3960) also makes point-and-shoot digital cameras, but offers many options. The Dycam 3 takes 496-by-365-pixel images with 256 grays for \$695. The Dycam 4 camera has the same pixel count but with 24-bit color for \$795; it stores 8 images at the highest quality. The options include versions with greater storage and close-up, wide-angle, and telephoto accessory lenses. On special order, Dycam will provide a focusing lens or a camera body that takes C-mount lenses, the kind originally developed for 16mm movie cameras. This last option is not yet available for the color cameras.

For higher-quality digital color images, the costs climb quickly (see *Graphics news*, *Macworld*, February 1995).

### Sound Input

Most PowerBooks include both a microphone and an audio-input port. The 100-series models and Duos with a sound port in a dock take a mike-level signal; use the Apple Omni-Directional Microphone (M1481LL/A, \$20). The 500-series models take a line-level signal. Microphone preamps or mixers can boost mike signals to line level, but they cost several hundred dollars. Apple's monaural PlainTalk Microphone (M9060Z/A, \$30) includes a preamp, but it requires 5-volt power. You'll have to build a 5V supply or make an adapter cable to get 5V from the ADB port; I suggest removing the unusual plug

on the PlainTalk mike and installing your own connectors. Perhaps someone will make an adapter cable as a commercial product someday.

The simplest good program for sound recording and playback is MicMac version 2.2, \$89 from Nirvana Research (408/459-9663). It can handle long recordings, provided you have the hard disk space. This works out to 5.3MB a minute for the highest quality 16-bit monaural recording—available only on the 500-series PowerBooks. For other PowerBooks, the highest quality 8-bit recording takes 1.4MB a second. For all PowerBooks, the lowest-quality recording takes 225K per minute. MicMac can record and play back in the background while you do other work with your PowerBook. MicMac has minimal editing features—it can only trim the beginning and end of a sound recording. For editing you need a program such as SoundEdit 16 from Macromedia (415/252-2000), at \$379 rather expensive for casual editing. With SoundEdit 16, you can record in stereo on the 500-series PowerBooks (call Macromedia for instructions).

For sound playback, the tiny speakers built into PowerBooks can suffice, but for better sound, you'll need a powered speaker. If you plan to listen to sound from a variety of CD-ROMs, get a powered speaker with two mixed inputs—one for the sound from the PowerBook, the other for CD-audio sound directly from the CD-ROM. The AppleDesign speakers (both the original and model II) are among the few with input mixing. Otherwise, you can plug the speakers into the CD-ROM drive and listen to the computer-generated sounds with the PowerBook's built-in speaker. There is no way to play CD audio directly through a 500-series PowerBook's stereo speakers. You can play CD audio in mono through a 100-series (except the 100 and 150) PowerBook's speaker with MicMac's play-through feature. (For more information on sound recordings, including audio connectors and attenuators, see *PowerBook Notes*, March 1994.)

When you play sound, install Control Strip (included in most recent PowerBooks and with System 7.5) for its quick-access speaker-volume control; you'll need to turn up the volume for sound you want to hear (such as your recordings) and down for sounds you don't want to hear (such as those annoying modem connection squeals). **m**

CARY LU is a *Macworld* contributing editor who covers mobile- and remote-computing issues in this monthly column. You can reach him at carylul@eworld.com.





# Mega 'Zines

*Electronic Mac mags make modems meaningful*

**T**HE POWER OF THE PRESS, GOES the saying, belongs to those who have one.

Not anymore. Thanks to a little gadget called a modem—and a big gadget called the Internet—anyone can be a publisher. Type up a text file, name it *Milty's Mac-O-Rama*, cork the bottle, and toss it out into the electronic sea of BBS systems and online services.

You've just started your own newsletter. Actually, to be trendy about it, you've just started your own *E-zine*, or just *'zine*.

There are dozens of these homebrewed rags on the cyber newsstand, as a quick search of your favorite service's libraries will attest. Many electronic periodicals fizzle out after a few issues; apparently some publishers start their *E-zines* with more *E-nthusiasm* than *D-iscipline*.

A few, though, manage to stay in business. Well, OK, *business* is a generous term; most of these *'zines* are free. Heaven knows why people, without hope of a single cent of repayment, devote themselves to writing, formatting, and distributing these time-draining, social-life-sapping labors. But thank heaven they do. As you'll see in this roundup of *E-newsletters* about the Mac, several of them are surprisingly worthwhile reading.

Oh, P.S.—no letters asking “What if I don't have a modem?” please. A true *E-zine* isn't available in printed form; its postage-free, instantaneous distribution (and consequent environmental savings) is the whole point. All of the *'zines* described below are available from online services as well as the usual Internet sites. I've put a sample issue of each in the Mac-world areas of America Online and eWorld. (And anyway, get a modem; they're cheap these days.)

## Information Alley

It must be tough writing manuals for Apple. I mean, you've got to write in that neutral, controlled, corporate tone that makes Apple look good and Macs look easy. You're never allowed to admit problems, hash out workarounds, or reveal secret features.

But thanks to the *E-zine* revolution, the backstage gurus in Cupertino have finally been unmuzzled. Twice a month they write, illustrate, and distribute a startling 20-page memo to the Macintosh world called *Information Alley*. Startling, because in no other forum is Apple so upfront about problems and undocumented features. It's also the only announcement the public gets of Apple's absolutely essential software updates and fixes.

Recent issues have revealed what causes Type 1, 2, and 3 errors; how to use the Newton's infrared beam feature; what causes freezes in Microsoft products under System 7.5; how to share printers between QuickDraw GX and non-GX Macs; how aliases work; where to find the secret Finder “about box”; what GPI is; and so on.



As you can tell from that list, *Information Alley* contains gems for people of all skill levels; right after an article on complex TCP/IP commands, you find a story called “The Blinking Question Mark.” There's no advertising, no editorial slant (except to be truly helpful), and no reason for everybody not to start looking up this Alley. (Free; published biweekly by Apple Computer; available in Common Ground double-clickable format or as .pdf files, which require Acrobat Reader.)

## The Low-End User

Is it just my imagination, or do most novice-oriented Mac magazines—from *Macazine* to *MacComputing*—seem to bite the dust?

As it was explained to me, low-end magazines have a tough time attracting advertisers—and thus surviving. Ah, but in the world of electronic *'zine* publishing, who needs ads? That's why an *E-zine* called *The Low-End User* (TLEU) is a timely, sane idea.

Ironically, *The Low-End User* newsletter is probably too techy for low-end users. It covers topics like the SuperCard authoring environment, compression software, and Usenet encoders.

But the bigger problem is content. The news sections seem to be paraphrased, uncredited, from magazines like

this one. And some of the reviews are amazingly irresponsible. “I went over to my friend's house. He had [StuffIt] SpaceSaver. The main ‘splash’ picture in the control panel was in black-and-white and looked really jaggy. That in itself turned me off and caused me to prefer the more colorful AutoDoubler.” Er... this is a joke, right?

TLEU is clearly put together by well-meaning, hardworking Macintosh users, and its personal, “this-is-what-I-think” tone is welcome. But it's pretty much what you'd expect of a homemade newsletter in the nineties: filled with factual, spelling,

and grammatical errors, with reporting and reviews meant to be taken with a StyleWriter-size grain of salt. (Free; published monthly by Optifex Phoenix; in DocMaker double-clickable format.)

## MacSense

If most other *'zines* are the *Village Voice*—text-heavy, opinionated, printed on newsprint—then *MacSense* is *Life* magazine. It's glossy, gorgeous, richly illustrated. This Canadian export has photos, origi-

*continues*



nal artwork, consistent font use—it's actually designed.

There's more to a good read than graphic design, though; fortunately, MacSense's writing, editing, and reporting are top-notch too. I read, for the first time anywhere, what life is like with an Apple TV/Video Card installed in a Quadra 630. The MacSense editors' specialty is sensible discussion of Apple's direction. Example: regarding Apple's recent design decisions (the metal IIx case, the nonslurping floppy drives, boxy monitor designs)—is the cost savings worth the damage they do to the Mac's reputation for design excellence?

The reviews of popular-interest items like new Mac models, games, and utilities are, one and all, balanced and well researched. It just shows ya—put some smart people together with smart technology, and you've got a publication that's got to be 'zine to be believed. (Free; published monthly; edited and created by Christopher McVeigh; in DocMaker double-clickable format.)

## DT&G

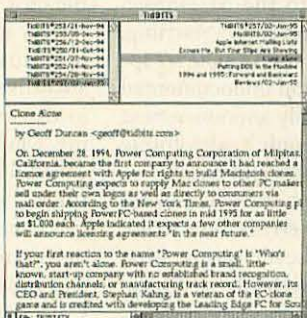
It stands for Design, Typography & Graphics, but Delicious Tricks by a Guru would do nicely, too. DT&G is a one-man tour de force of advice, instruction, and how-to's pertaining to all things graphic: fonts, PostScript, layout, formats, type, Photoshop, QuarkXPress, PageMaker, printers, printing companies, inks, editing, special papers, and on and on.

The tone is unique among E-zines: a first-person, instructive voice ("Can you tighten the top border of a photo closer to the person's head? I'll bet you can")—the voice of a tutor to his student. And little wonder: the sole author, editor, and publisher is veteran designer Fred Showker, who developed DT&G as a means of answering follow-up questions from his desktop publishing seminars.

Each issue, in fact, is a seminar unto itself; punctuated by crisp line-art and diagrams, the articles walk you through designing your own business cards, or creating a year-end client mailing, or writing a press release. There are other E-zines; there are even other E-zines about design and art. But none approach the usefulness of this one (especially not for free). (Free; monthly; in DocMaker double-clickable format. Six issues of a



## Information Alley



## TidBits

disk edition, featuring clip art, diagrams, and the like, is available for \$99 if you fax in a cover sheet from The OnLine Edition of DT&Gmac.)

## TidBits

As electronic Mac 'zines go, TidBits is the granddaddy of 'em all. Creators Adam and Tonya Engst report that their 300th issue will soon be flung into cyberspace.

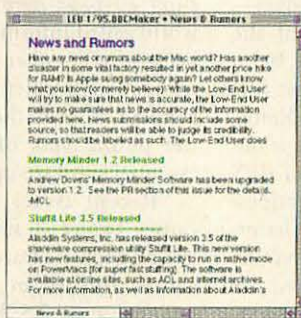
How can one describe TidBits? It's weekly; it's all text; it's professional. There's a heavy slant toward technical topics—the Internet, of course; SCSI Manager 4.3; bugs and glitches; and Apple products, new Apple policies, new Apple anything.

The writing is sharp, concise, colorful: "Microsoft Word 6.0 boasts an impressive feature set that helps it to leap tall buildings—very slowly." What's most compelling about TidBits is its global, interactive, Internet readership; fans reply by E-mail from all over the planet to share their perspectives. (One guy wrote to complain about the keyboard shortcuts in American software, many of which don't work on his Danish keyboard.)

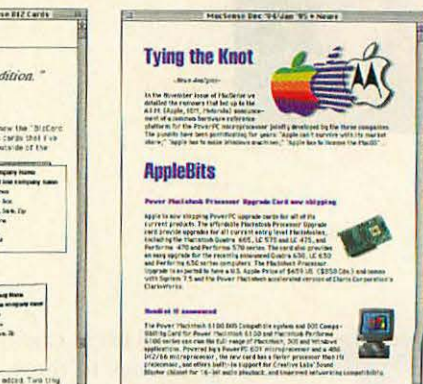
Read this newsletter before buying a new Mac (to see if a newer model is coming out next month). Read it to find out how you can get Apple press releases by E-mail. Or read it to get a five-minute weekly fix on the Mac's position in the universe. (Free; weekly; available as a text file. If you read it using the freeware pro-



## DT&G



## The Low-End User



## MacSense

**E-Zines Made Easy** It's amazing how inexpensive a publication can be if it doesn't have to pay for writing, editing, design, paper, ink, or postage. Here's a sampling of the writing and design of some leading contenders. (Good news: there's no subscription fee. Bad news: they won't arrive in your physical mailbox; you have to go seek them out online.)

gram Easy View, TidBits gains a neat, click-to-navigate table of contents.)

## Info-Mac Digest

Don't let the name fool you. This one's not really so much a magazine as it is a free listing. Each week it summarizes what's new in the world of Macintosh—new freeware and shareware, complete with short descriptions and Internet locations, as well as problems and solutions exchanged in E-mail form. For the Mac junkie who's learned how to access the Internet's software vaults via America Online (or who has a direct Internet connection), it's worth skimming.

## The Upshot

The Internet is one gigantic well-stocked fridge ready for raiding; for some strange reason, people go up there and just give stuff away. These impressive free publications are an excellent case in point. TidBits and DT&G are especially worth reading for pros and power users; Information Alley and MacSense are worth reading no matter who you are.

And you know the best part about reading E-zines? Not a single one of those stupid subscription cards will fall into your lap. **m**

Contributing editor DAVID POGUE does three things every day: write, sleep, and answer E-mail. His latest book is *Mac FAQs [Frequently Asked Questions]* (IDG Books Worldwide, 1995).



## Signature Software

# Personal Font™

The Original Custom Cursive Handwriting Font

Version 2.0

Patent Pending

**NEW VERSION**  
Now Works with ANY printer! Characters connect on screen. PostScript Not Required.\*

### Font Technology Breakthrough!

Now you can add your own handwriting to the Font Menu! Signature Software's Personal Font is a custom font which can reproduce your handwriting - including the exact way that you shape and connect your letters. This unique patent pending technology will actually vary the shapes of your letters depending on the characters around them. No other font can do this!

#### PERSONALIZE YOUR CORRESPONDENCE

With Personal Font you can join the personal impact of your own handwriting with the convenience

and power of your personal computer. Imagine running your spell checker on your handwriting! Use your word processor's cut and paste features to polish up your handwritten letters. Add a friendly handwritten P.S. note to your business correspondence. Or even sign your FAX-modem messages!

#### CREATE YOUR FONT TODAY!

For your own Personal Font, simply write the 26 words as well as the capital letters, numbers and punctuation found on the back of this page. From that sampling, Signature Software font designers will individually convert your handwriting into a custom font which duplicates the unique way you create each word - not

just each letter. Your font will include your signature and will even have a name which you specify.

#### HANDWRITING FROM THE KEYBOARD.

Personal Font captures your handwriting at its best. Your font has the same style and character as your own handwriting - without the inconsistencies and inkblots! With your own Personal Font in the Font Menu you'll find yourself creating handwritten notes without hesitation - straight from your keyboard!

Since each order is custom, please allow two to four weeks processing time. If you're in a hurry, for an extra \$25 Signature Software will ship your order within five working days.

#### Actual Handwriting vs. Personal Fonts:

*Peter's actual handwriting.*

*Peter's Personal Font.*

Peter Matthews - Toronto, ONT

*Colin's actual handwriting.*

*Colin's Personal Font.*

Colin Johnson - Portland, OR

Your Personal Font can be installed and used as simply as an "ordinary" font. It appears in your menu and functions just like any other typeface in your computer.

#### System Requirements:

Mac - System 6.05 or higher  
PC - Windows 3.1

Any printer can be used with Personal Font on a Mac system. Please call for availability of Personal Font v2.0 for Windows systems.



Signature Software, Inc.

489 N. 8th St. Suite 201 1-800-925-8840  
Hood River, OR 97031 1-503-386-3221

You're looking at a font of my handwriting. If you look closely, you'll find that each character is tailored to the characters around it. For example, look at my "s" letters in the word "subsystems." When I filled out the form on the next page, I connected most, but not all, of my letters. Even if you don't connect ANY of your letters, everything you'd like to do in long-hand you can now do straight from your keyboard - including numbers, letters, punctuation, and your signature - in any size you want. Just carefully write 26 words and a few symbols once, and from then on all your handwriting will be at its best. I'm proud of my Personal Font and hope you enjoy yours, too!

Dave Fenwick  
Signature Software, Inc.  
(800) 925-8840

## THERE'S NO OTHER FONT LIKE YOUR PERSONAL FONT, AND HERE'S HOW TO ORDER!

### ORDER YOUR FONT!

Send your completed form to:

Signature Software, Inc.  
489 N. 8th St. Suite 201  
Hood River, OR 97031

Because each order is custom please allow 2 to 4 weeks. Add \$25 for 5 day processing. (48 hour processing is available). \$7<sup>95</sup> special handling for Personal Font includes personalized disk, personal test document and copy of original form.

**New Version!**  
~~\$229<sup>95</sup>~~  
**\$99<sup>95</sup>**  
\$US  
+ \$7<sup>95</sup> shipping and special handling

Signature Software  
**Personal Font™**  
The Original Custom Cursive Handwriting Font

Version 2.0 MAC ONLY  
(Item #1186)

Dealer Inquiries Welcome

"For those times when Palatino or Arial just won't do, fonts from Signature Software come to the rescue."  
-Computer Shopper  
"I recommend these fonts for each and every person who has heard (or read) the words, typing is impersonal."  
-MacWorld

### Special Upgrade Offer!

Current Macintosh Personal Font owners: Order a Version 2.0 upgrade today for only \$49<sup>95</sup>. Now you can get **on-screen** contextual (connected) characters and print using ANY printer. A real WYSIWYG custom cursive font!

To receive your upgrade simply fill out and mail the order information on the left or call us at 503-386-3221 (fax: 503-386-3229). Please include your Personal Font registration number. **Note: there's no need to re-complete the handwriting form to receive your upgrade.**

NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_

ZIP \_\_\_\_\_

COUNTRY \_\_\_\_\_



CARD NUMBER \_\_\_\_\_

(circle one or enclose check)

CARD EXPIRATION \_\_\_\_\_

PHONE \_\_\_\_\_

CARDHOLDER'S SIGNATURE \_\_\_\_\_

#### Shipping and Special Handling

##### United States

- ☐ Regular \$7<sup>95</sup>  
☐ Express 48 State \$15<sup>95</sup>  
☐ Express AK, HI, PR \$25<sup>95</sup>

##### International

- ☐ Regular \$15<sup>95</sup>  
☐ Express \$40<sup>95</sup>  
Express shipping requires street address and phone number

- ☐ Yes! RUSH me my Personal Font in 5 working days for \$25 extra (#1187)

- ☐ Yes! Upgrade my existing Personal Font to version 2.0 for \$49<sup>95</sup> (#1188)

Registration Number: \_\_\_\_\_

Available for Macintosh systems only. Windows version available soon.



# Signature Software <sup>for Mac and Windows</sup> Personal Font <sup>TM</sup>

The Original Custom Cursive Handwriting Font

## SAMPLE FORM INSTRUCTIONS

1. Write your signature within the Signature box. For best results, try to ensure that the signature fits within the box.
2. Write the words shown within each box using the broken lines as a base. Begin each word on the left side of the boxes. Characters can be connected or disconnected or a combination of both!
3. Write naturally and consistently. Practice first on

Name: \_\_\_\_\_

Phone #: \_\_\_\_\_

a separate sheet of paper. Remember, what you write here will become the final font.

4. For best results use a rollerball or fibertip pen. **Do not use ballpoint pens or pencils!**
5. Use the grid lines in the boxes as an aid to maintain consistent height and slant. Be sure capital letters are proportional to lower case letters.
6. Write your capitals normally. Consider the appearance of capitals when at the beginning of words AND when words are all capitalized. Don't forget the punctuation!

7. Name your font and complete the ordering information on the front of this form. **Indicate PC or MAC on card!**

**NOTE:** Strike out mistakes and write corrections nearby. Signature Software can even make changes after you receive your font!

### NAME YOUR FONT!

The name must be seven alphabetic characters or less.

--	--	--	--	--	--	--

Signature (your name)

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

adjoint

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

bowman

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

cyclops

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

doubt

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

egtype

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

forgiven

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

grocery

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

hydrodyke

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

ionize

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

jewfishes

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

kagvels

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

lysozyme

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

mojxe

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

novque

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

oxyfobe

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

polygyne

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

quote

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

rybema

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

skyque

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

toyjoke

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

unfaxed

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

vogue

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

waywhips

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

xylosse

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

yachtque

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

zigzag

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

( )

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

{ }

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

[ ]

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

An .

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Be ,

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Co !

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Do ?

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Ea ;

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Fo :

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Go "

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Hi '.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

In `

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Ju ~

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Ko \_

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Li #

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Mo %

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

No \$

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Of &amp;

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Pa |

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Qu @

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Ro ^

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

So +

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Th -

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Un \*

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Ve =

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Wi /

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Xy \

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

' Ye '

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

" Zo "

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

&lt; &gt;

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

1 2

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

3 4

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

5 6

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

7 8

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

9 0

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--





# Famous Last Words

*Levy to Apple: Don't drop dead*

**T**HIS IS MY LAST COLUMN FOR *Macworld*. After almost ten years in this space, I think I got my message across—the Macintosh is a very nice computer, and people should consider owning one. Now that the Mac operating system is the industry standard, and the nonstarter competing system promulgated by a now-almost-bankrupt software concern in Washington State has seen its market share slip to 3 or 4 percent, there's not much left to write about. Especially since Apple management hasn't made a single mistake in, oh, six or seven years. So I'm retiring.

Oops—sorry. I seem to have slipped in some copy from an aborted April Fools' column. Forget almost everything I said, except for the statement about my departing. It's no joke; I'm beginning a stint as a columnist for *Newsweek*. I will still maintain a relationship with *Macworld*, so you haven't seen the last of me in these pages. But this is my final monthly dispatch.

I'm getting a little *faklemt* here. . . . Got a cinder in my eye or something. . . . Ah, heck, let me say it—I'll miss you folks. Just give me a minute. There, that's better. No time for maudlin good-byes—I want to use the rest of this space to discuss my hopes and concerns about that machine I've spent so much time pondering. In short, I think that the future of Macintosh could be as glorious as its past—if only Apple's management makes the commitment to believe in it.

## The Apple Enigma

Apple is a funny company. It has built itself into a business grossing nearly ten billion dollars a year, with hundreds of millions of dollars in earnings. It has about a billion bucks in cash. Its technology is unparalleled. The brand name Macintosh is the most valuable hardware label in the business. And the successful intro of the Power Macs ensures Apple's status as the maker of the most powerful machines in the marketplace. Yet for the past two years, whenever someone hears that I write for *Macworld*, I am almost inevitably asked, Is Apple doomed?

Of course Apple isn't doomed. While it's not out of the question that at some point it might merge with some other giant—not so much because of weakness, but simply because this is the way the world works these days—Apple is by no means at the precipice. Even if the worst happened, and Apple's market share dwindled, the company could survive as a niche player in a very large market. Apple still holds strong advantages in graphics and education. There will be Macintosh in the twenty-first century. Really.

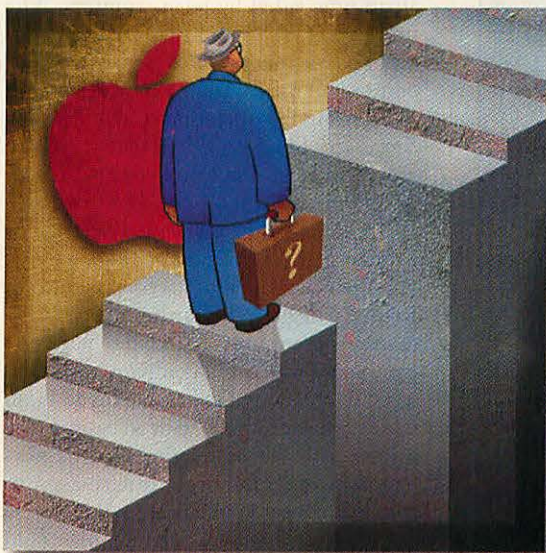
Yet it's troubling that the public perception of Apple is so dismal. I guess it's obvious why some people think so little of the company—about nine out of ten computer users aren't Macintosh users. I won't dwell on the standard reasons why Apple lost the market-share wars (in the

takes a doctorate in engineering to connect a CD-ROM drive to a home computer running Windows. Until Windows 95 arrives, those using non-Apple computers still can't name a file Letter to Grandma. Apple networking is built in; other computers subject networkers to unintended lessons in chaos theory. Why doesn't anyone realize these things? Because Apple for years was too busy pushing computers as a lifestyle choice instead of educating the public on why its products were better than the others. Only recently has Apple decided to focus on why its computers are better—but the company's not being aggressive enough. The only reason I can figure out why Apple didn't jump on the Pentium debacle in its ads is that Apple is hiding some similar horrid flaw in the PowerPC chip—

otherwise there was no excuse for not bashing a key competitor at a crucial moment. If Apple's leaders aren't ready to get tattoos reading "Die, Intel, Die!" they shouldn't be Apple's leaders.

## Revive Evangelism.

Hasn't anyone at Apple read Guy Kawasaki? Apple once had a proud get-out-the-software effort that supported third-party vendors and sought out up-and-comers. That spirit should be revived. Instead of whining about how its low market share is driving away software developers, Apple should exploit the



eighties, the Mac cost too much and Apple stubbornly refused to license its operating system—that's water under the bridge. The fact is that there are plenty of things that Apple can do right now to improve its position and ultimately regain its position as the class act of the micro-computer world. Here are a few of them.

## The Remedies

**Press Your Market Advantage.** The Pentium can't do long division, and it's slower than the PowerPC, anyway. It

situation. It should scour start-up companies, university computer centers, and even Silicon Valley garages for potential software superstars, people with great talents and twisted genius. Then whisper in their ears: "Sure, there are a lot more people using DOS and Windows computers—but the competition is tougher, and it's harder to get your product noticed than in the chummy Mac market. If your idea is as great as you think it is, Microsoft will undoubtedly develop a

*continues*



# Don't Miss June's Hot Topics

High Speed CD-ROM Drives

Workgroup Printer

Writing Tools



**Macworld**  
THE MACINTOSH® AUTHORITY

product that does the same thing. Do you really want to develop a product that runs on a platform controlled by your eventual competitor?" While the developers digest this logic, Apple should give them computers, development tools, and access to beta copies of new system software. If it helps to evolve one product that's a tenth as good as PageMaker is, the effort will have been more than worth it.

**Be Bold.** How can you boost market share unless you take daring steps? For most of 1994, Apple had a wonderful product to sell—a powerful color PowerBook. Yet due to Apple's chronic timidity in judging the popularity of its machines, there weren't enough machines available, and prospective customers had to wait weeks or months to get a unit. Who knows how many people gave up and bought IBM ThinkPads. Just imagine what would have happened if Apple concluded that it had a truly great product, invested money so that its factories churned out zillions of units, and cut its prices to flood the market with its best shot. Instead, the dominating motivation was fear of guessing wrong and being stuck with a large inventory.

It's pathetic to see a company founded on the spirit of garage entrepreneurialism now ruled by bean counters. The future has never belonged to accountants—risk-takers rule. So what's the point of all the caution? I'm not a big fan of licensing the operating system (see *The Iconoclast*, January 1995), but if you're going to do it, don't pussyfoot with secondary companies—get it done with IBM, Panasonic, General Motors, or Procter and Gamble. Think big!

Over a year ago I wrote a column strongly urging Apple to make Macintosh the computer associated with the Internet. I urged the company to use all its skill, creativity, and resources to build in full Internet access, with an easy-to-use interface as yet unimagined in the networked world, and even, if necessary, to assure one-step connections to the Net by securing local gateways so people could be surfing the Net with a single button. People within Apple, it turned out, were thinking the same thing. But the idea stalled. Not surprisingly, someone else has decided to run with the bigger, bolder idea—Microsoft. Apple's rival has bought a company to provide the local gateways and has licensed a version of Mosaic to bundle with Windows 95. Apple not only blew a major opportunity but ceded that chance to its competitor. If the corporate heads of Apple care at all, they should examine this blunder carefully, extract a lesson, and immedi-

ately begin playing catch-up. There's no reason why Apple's excellence should not be playing a major role in the information superhighway, and the way to do it is to throw the long bomb. Which brings us to . . .

**Innovate, Innovate, Innovate.** Apple owes almost all of its success to the superiority of its products. Yet almost every year, it yields a bit more of its lead. We see Michael Spindler actually *bragging* to a *New York Times* reporter that he doesn't think that vision is a terribly important thing. Wrong, Diesel. While sweating the details is crucial, and Spindler does a generally good job at it, Apple's ultimate survival depends on continual innovation. Reliability, service, and a coherent product line are important; but the reason we love Apple is that it delivers magic. That's

---

*Apple, dazzle and  
surprise us. Make our jaws  
drop again.*

---

why it's so disappointing to see delays in the great breakthroughs in telephony, voice recognition, and interface pioneering that Apple has promised us. For Apple, breakthroughs are like breathing—not the kind of thing you postpone. There is still tremendous talent at Apple. Maybe what is needed are the types of managers who can assemble small groups of wizards, convince them they have a chance to change the world, and post some slogans on a blackboard, like "It's better to be a pirate than join the navy," or "Real artists ship." Yes—just like Steve Jobs did with the original Macintosh team.

This is no time to be tentative. We may be living in the most exciting time in human history. Computer technology—and to a degree, Apple technology—is the critical factor. It would be tragic if for lack of nerve, or lack of vision, this remarkable company squandered its legacy and downgraded itself to a footnote in this truly epochal revolution. I beg the Brahmins of Cupertino: Live up to the promise. Dazzle and surprise us. Make our jaws drop again. Don't let us forget why we loved you in the first place. The magic can happen again. Make it happen.

I'll be watching. **m**

---

STEVEN LEVY's latest book is *Insanely Great: The Life and Times of Macintosh, the Computer That Changed Everything* (Viking, 1994). Levy is a Fellow of the Freedom Forum Media Studies Center in New York.





# Cyberspace Lawsuits

*Careless words may endanger your career or your bank account*

**F**LAMING, FEUDING, AND FUSSING are common forms of online exchange. I think you're stupid and say so in a public forum. You respond in kind, and soon we're swapping half-baked allegations and countercharges about each other's parentage, character, and capabilities. Despite the frequency of such exchanges and the passion they inspire, few people call an attorney when they feel wronged online. More often than not, people fight irritating messages by posting more messages of their own.

That's not a bad strategy. But there's no absolute freedom of speech, not even in cyberspace. Careless words could damage your reputation or your career. Add attorneys to the mix, and your bank account may be in peril as well.

## Risky Business

Recently, for example, a Prodigy subscriber faced a \$100 million libel suit for comments about the Stratton Oakmont investment bank posted in Prodigy's Money Talk forum. According to Peter Lewis of the *New York Times*, the messages claimed that the investment company would soon shut down because its initial public offering had been illegal. Not true, said Stratton Oakmont. (It turns out, someone else had used the Prodigy member's account; the subscriber has been dropped from the lawsuit, which continues against Prodigy itself.)

In 1994 David Rindos won a \$40,000 judgment in an Australian court against fellow anthropologist Gilbert Hardwick for comments posted on a global academic network. The judge said Hardwick's comments implied that Rindos engaged in sexual misconduct and that "the plaintiff's professional career and reputation has not been based on appropriate academic research but on 'his ability to berate and bully all and sundry.'"

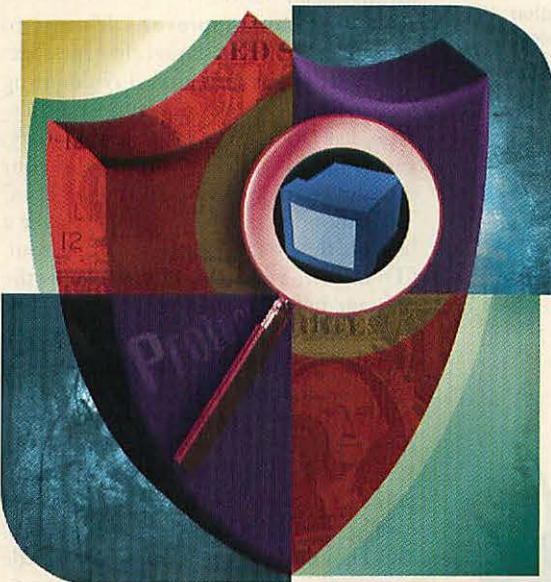
Two other cases also illustrate the trend. Suarez Corporation Industries, which markets itself on the Internet, sued the author of an electronic newsletter last year for calling the company's approach a

"scam." In 1993 MedPhone Corporation filed a \$40 million libel suit against MedPhone investor Peter DeNigris for comments he posted about MedPhone in Prodigy's Money Talk forum. Suarez settled for the court filing fee of \$64; MedPhone and DeNigris paid each other \$1. (Presumably attorneys' fees were higher.)

## Of Libel and Privacy Law

The laws that apply to written speech also apply online. Statements that libel, defame, or invade the privacy of others may lead to the same kinds of legal headaches.

The most basic definition of libel is "the dissemination of a false statement of fact about a specific person that is sufficiently serious to damage that person's reputation," according to Kent Stuckey, general counsel for CompuServe.



The key there is "false statement of fact." You can call me a greedy jerk without penalty because that's an opinion, however misguided, and you're legally entitled to it. But if you claim I'm a greedy jerk who rips off my customers, you're making a factual claim that implies I am guilty of criminal wrongdoing. If that's not true, you could face hefty charges.

Even true statements can run afoul of the law because people have a right to privacy. "If you say someone is cheating on

his wife, it might be true, but you're not entitled to spread it around," says attorney Lance Rose, author of *NetLaw* (Osborne, McGraw-Hill, 1995) and a columnist for *Boardwatch Magazine*.

## Private Speech, Public Forum

These issues are old hat to attorneys but may come as a rude surprise to cyberspace rowdies and their bosses. It's easy to spout off online without thinking. What may feel like a private exchange between a few friends is often a very public statement accessible to hordes of unseen people.

"You're just looking at a screen; you don't realize there are millions of faces behind it and some of them might be angry at what you say about them," notes Steven McDonald, associate legal counsel for Ohio State University. "The fact that it's on a computer is no different than if it is broadcast by a TV station or [published] in a newspaper or in a book."

The hundreds of thousands of members of commercial online services and the millions of people accessing the Internet constitute a nightmare of potential risk. The potential damages for a libelous statement increase with the size of the audience. And according to Stuckey, "unlike with some other forms of communication, it is clearly foreseeable that what you say could be copied and very widely distributed in such a way that your words can be tracked down to you."

Even if you don't face a lawsuit, careless words could cost you a job. At least two computer professionals have been forced to leave their companies because of their online conduct.

## Protective Measures

Avoiding a lawsuit—or job loss—is not difficult if you approach electronic communications sensibly. Before posting a

*continues*



# Keep the Flame Alive

The lamp of freedom and the light of learning can take many forms.

Your company's used computers, laser printers, modems, and other surplus equipment can help empower young minds in America, and advance the development of emerging democracies around the world.

The East West Foundation takes your surplus or used equipment and distributes it to American schools and charities and to democratic and educational institutions in Eastern Europe, Africa, Asia, the Commonwealth of Independent States, and Latin America—wherever it can make a difference. And it *does* make a difference.

Donating used or overstock computer equipment to the East West Foundation can make a difference to you, too—at the bottom line. Because all donations are tax-deductible. And all types of computer equipment are welcome.

To arrange for a donation or for more information, please call:

EastWestFoundation  
49 Temple Place  
Boston, MA 0211  
(617) 542-1234  
Fax (617) 542-3333

**EAST WEST**  
EDUCATIONAL DEVELOPMENT FOUNDATION

A Not-For-Profit  
Corporation

## CONSPICUOUS CONSUMER

public statement or even sending private E-mail, which could be copied and posted publicly by the receiver (or monitored by your boss), consider these questions.

**Is It True?** Readers sometimes complain to *Macworld* that some companies practice bait-and-switch tactics or that others are going out of business. You may be angry that a company no longer has a particular product for an advertised price, but that does not necessarily translate into a bait-and-switch move, which has a specific legal meaning. And it may be hard to believe that a company not answering its phones is still in business, but a staff shortage or phone problem could explain the situation. Check your facts—don't make assumptions.

**Is It Relevant?** John Doe was accused of sexual harassment several years ago at a company where you used to work. Now he's at a new firm and is active online. Though you're eager to share this history with your online buddies, don't. An invasion-of-privacy lawsuit might be the result.

**Is It Damaging?** Rumors can drive down the stock prices of a publicly traded company, such as MedPhone, or threaten the professional reputation of an individual, as David Rindos feared. Ponder the possible impact of your words before you hit that Send button.

**Would Mom Approve?** It's easy to respond in kind to a thoughtless message, especially if you're angry. Try counting to ten first. Whenever you post a message, ask yourself if it's inflammatory, sneering, or rude. What would your mother say if she saw it? Or your boss? Tone alone may be enough to trigger a lawsuit by a particularly sensitive soul. (To be safe, ask a coworker to review the message before it goes out.)

People rarely sue over these issues. "You're not going to find libel lawsuits unless someone is really, really upset," says attorney Robert Hamilton, a libel specialist with the law firm Jones, Day, Reavis, and Pogue in Columbus, Ohio. "If you can remove the emotions from the case, generally there won't be a lawsuit," says Hamilton. Acting arrogant or hostile may up the odds of court action, whereas a willingness to apologize, correct inaccurate information, or remove the offensive posting may resolve the dispute.

Legally, companies can be held responsible for actions employees perform in the course of their jobs. That means managers may find themselves at risk for lawsuits sparked by an employee's negligence.

To protect themselves, companies may want to establish a policy banning the use of personal E-mail or limiting elec-

tronic communications to subjects directly related to work. A less drastic approach is asking employees to include a disclaimer on electronic messages making it clear that employees are speaking as individuals and not as company representatives.

If all precautions fail and you do face a lawsuit, find a net-surfing attorney who's an expert in libel and related issues. You don't want to bankroll the education of a less-experienced lawyer.

## Future Shock

Cyberspace may yet pose some interesting twists to established law; one issue is jurisdiction. "It's actually very hard to win a libel suit in this country," says McDonald. "The problem is, when you're online you may not be in this country."

A case in point: Usenet newsgroups exist on servers around the globe. That's a fact Laurence Godfrey is attempting to use to his advantage. The Canadian academic recently filed a libel suit in London against another academic who lives in Geneva, based on what Godfrey claims is a defamatory Usenet message.

Libel cases are much easier to win in Britain than in the United States, in part because the United Kingdom has no First Amendment guarantee of freedom of expression. Moreover, there the burden of proof is on the defendant, not the plaintiff. But as a practical matter, Godfrey may be unable to collect damages even if he wins the suit.

In the future, there may be alternatives to a courtroom battle, according to Mark Walsh, president of GENIE Services. "I think the marketplace will create a solution to libel, and it won't be lawsuits," he says. "We're going to have to have a marketplace yardstick of what is reliable and what isn't." One possibility: a kind of *Consumer Reports*-like reliability index, which would inform readers of the expected truthfulness or accuracy of a particular message. Highly factual folks might get a 9.9 rating on their messages, while those prone to exaggeration or unknown to the system might get a 1.1.

A lawsuit-free zone sounds appealing, but it's unlikely. So mind your manners while online. The job you save may be your own. ■

You can write to contributing editor DEBORAH BRANSCUM, *Macworld's* Conspicuous Consumer, at *Macworld*, 501 Second St., San Francisco, CA 94107, or via the Internet (branscum@aol.com).

Send nominees for sainthood to *Service Heroes*, *Macworld*, 501 Second St., San Francisco, CA 94107, or via the Internet (branscum@aol.com). Also, drop *Conspicuous Consumer* a line if a company is ignoring you.





# Editors' Choice

THE BEST PRODUCTS FEATURED IN MACWORLD

Edited by Elizabeth Maffly

*Macworld Editors' Choice* is a complete listing of the hardware and software products selected as the best of their type in *Macworld's* comparative articles. A ♦ next to a product indicates that we chose more than one product in that category. A Ⓢ next to a product listing indicates that a native Power Mac version is available.

## Hardware

### MONITORS

#### SMALL COLOR MONITORS, Jan 94

**14-inch display:** ♦ Sony CPD 1430; Sony Corp. of America, 800/222-7669; \$779.95.

♦ Nanao FlexScan F340i•W; Nanao USA, 800/800-5202; \$799.

**15-inch display:** NEC MultiSync 4FGc; NEC Technologies, 708/860-9500; estimated street price \$755.

#### TWO-PAGE COLOR MONITORS, Nov 94

PressView 21 Display System; SuperMac Technology, 408/541-6100; \$3999.

### NETWORK HARDWARE

#### REMOTE-ACCESS SERVERS, Oct 94

**Mixed networks:** NetConnect Remote Access Server; Asanté Technologies, 408/435-8401; \$3899 for eight ports.

**AppleTalk networks:** ARA Multiport Server; Apple Computer, 408/996-1010; four ports \$1799, eight ports \$3298.

### PRESENTATION HARDWARE

#### PORTABLE PRESENTERS, Jan 95

Z115; nView, 804/873-1354; \$5495.

### PRINTERS

#### COLOR PRINTERS, Aug 94

**Low-end ink-jet:** DeskWriter 560C; Hewlett-Packard, 800/752-0900; \$719.

**Solid ink-jet:** Phaser 300i; Tektronix, 503/682-7377; \$9995.

**Thermal-wax transfer and color laser:** Phaser 220i; Tektronix, 503/682-7377; \$5995.

#### DYE-SUBLIMATION PRINTERS, Jul 94

**Prepress proofing—tabloid size/fastest:** Phaser 480; Tektronix, 503/682-7377; \$14,995.

#### Prepress proofing—tabloid size/most complete:

Rainbow; 3M, 612/733-1110; estimated street price of \$20,000.

**Prepress proofing—letter size:** ProofPositive Full Page; SuperMac Technology, 408/541-6100; \$7999.

**General publishing and business:** Phaser IISDX; Tektronix, 503/682-7377; \$9995.

#### PERSONAL PRINTERS, Sep 94

**Ink-Jet:** DeskWriter 520; Hewlett-Packard, 800/752-0900; \$365.

**Laser—\$1000 to \$1600:** microLaser Pro 600; Texas Instruments, 214/995-6611; \$1599.

#### WORKGROUP PRINTERS, Feb 94

**High-speed:** Hewlett-Packard 4Si MX; Hewlett-Packard, 800/752-0900; \$5499.

**Best buy:** ♦ Apple LaserWriter Pro 630; Apple Computer, 408/996-1010; \$2529. ♦ Hewlett-Packard LaserJet 4M; Hewlett-Packard, 800/752-0900; \$2329.

### SCANNERS/IMAGE CAPTURE

#### ELECTRONIC CAMERAS, Sep 94

Apple QuickTake 100; Apple Computer, 408/996-1010; \$749. Ⓢ

#### HIGH-BIT FLATBED COLOR SCANNERS, Mar 95

♦ Arcus II; Agfa, 508/658-5600; \$3495.

♦ PowerLook; Umax, 510/651-8883; \$3495.

#### LOW-COST COLOR SCANNERS, Nov 93

**\$1300 to \$1600:** ♦ La Cie Silverscanner II; La Cie, 503/520-9000; \$1599.

♦ Hewlett-Packard ScanJet IIc; Hewlett-Packard, 800/752-0900; \$1599.

**Under \$1300:** Mirror 800 Plus Color Scanner; Mirror Technologies, 612/633-4550; \$1299.

#### OCR, Nov 93

OmniPage Professional; Caere Corp., 408/395-7000; \$995. Ⓢ

### SYSTEMS/STORAGE

#### 1.3GB OPTICAL STORAGE, Dec 94

**Best low-cost solution:** 1.3GiB MO; Club Mac, 714/768-8130; \$2099.

**Best overall performance:** Genesis 1300; Microtech, 203/468-6223; \$2899.

#### HIGH-SPEED HARD DRIVES, Aug 93

**2.7GB drives:** ♦ Nova XL 2700; Microtech, 203/468-6223; \$2999. ♦ Vista 3.5GB; Relax, 510/471-6112; \$3499.

#### SCSI-2 adapter: QuickSCSI; PLI, 800/288-8754; \$499.

#### PC COPROCESSING, Oct 94

OrangePC Model 210; Orange Micro, 714/779-2772; \$1283.

#### RAID STORAGE SYSTEMS, Apr 95

**RAID 3 or 5:** MR/5 RAID; MegaDrive Systems, 310/247-0006; \$18,840.

**RAID 0:** SledgeHammer 2000FMF; FWB, 415/474-8055; \$2359.

#### SYSTEM UPGRADES, Feb 95

**Upgrade for Macintosh Quadra 650, 800, or 950:** Power Macintosh Upgrade Card; Apple Computer, 408/996-1010; \$699.

**Upgrade for other 680X0 Macs:** Replace with Power Macintosh 6100/60 with CPU booster and cache card. Power Macintosh 6100/60; Apple Computer, 408/996-1010; \$1819 (base system with 8MB of RAM). PowerClip (CPU booster); Newer Technology, 316/685-4904; \$245. 256K cache card; various companies, roughly \$200.

### VIDEO/DISPLAY

#### 24-BIT VIDEO CARDS, Apr 94

**Inexpensive acceleration:** PrecisionColorPro 24XP; Radius, 408/434-1010; \$599.

**Full-featured acceleration:** Thunder II GX•1360; SuperMac Technology, 408/541-6100; \$4499.

#### HIGH-END VIDEO EDITING, Jun 94

**Presentation video:** ♦ MoviePak2 Pro Suite; Raster-Ops, 801/785-5750; \$4199. ♦ VideoVision Studio; Radius, 408/434-1010; \$4499.

**Corporate video (offline):** Media Composer 400s; Avid Technology, 508/640-6789; \$14,995.

**Corporate video (online):** VideoCube; ImMix, 916/272-9800; \$40,500.

#### PHOTOSHOP ACCELERATORS, Apr 94

PhotoBooster; Radius, 408/434-1010; \$999.

## Software

### ACCOUNTING/FINANCE

#### GROWING A SMALL BUSINESS, Nov 93

**Small-business system:** M.Y.O.B.; Best Ware, 201/586-2200; \$199.

**Home office/personal finance:** MacMoney; Survivor Software, 310/410-9527; \$119.95.

*continues*




# Editors' Choice

## BUSINESS TOOLS

### PORTABLE-DOCUMENT SOFTWARE, Apr 93

**Document Distribution:** Common Ground 1.1; No Hands Software, 415/802-5800; \$189.95.

### STATISTICS, Oct 93

**Exploratory data analysis:** DataDesk 4.1; Data Description, 607/257-1000; \$595.   
**Comprehensive package:** SYSTAT 5.2.1; SYSTAT, 708/864-5670; \$895.

## CD-ROM

### TOP 10 CD-ROMS, Mar 94


**Overall:** Seven Days in August; Time Warner Interactive Group, 818/955-9999; \$79.99.

## COMMUNICATIONS/NETWORKS

### COMMUNICATIONS SOFTWARE, Aug 94

**Basic connectivity:** ZTerm; David P. Alverson (no phone number available); \$30.  
**Terminal emulation:** Crosstalk for Macintosh; Digital Communications Associates, 404/442-4000; \$195.  
**Internet exploration:** VersaTerm; Synergy Software, 215/779-0522; \$125.

### DOS WINDOWS EMULATION, Oct 94

Timbuktu Pro 1.0.3 for Macintosh; Timbuktu 1.1 for Windows; Farallon Computing, 510/814-5000; \$199 each. 

### HIGH-SPEED FAX MODEM SOFTWARE, Oct 93

Faxstf; Telefocus, 816/886-9800; \$79.

### NETWARE CONNECTIVITY, Sep 93

NetWare for Macintosh; Novell, 801/429-7000; \$495 for 5-user license to \$2295 for 200-user license.

### PROTOCOL ANALYZERS, Jul 94




EtherPeek, AG Group, 510/937-7900; \$795.

### TERMINAL EMULATOR, Oct 93




VersaTerm; Synergy Software, 215/779-0522; \$149.



## GRAPHICS

### 3-D MODELING, Dec 94


**Stand-alone modeler:** formZ; autodessys, 614/488-9777; \$1495.   
**Integrated-modeling package:** Strata StudioPro; Strata, 801/628-5218; \$1495.   
**Entry-level modeler:** Infini-D; Specular International, 413/253-3100; \$695. 

### CLIP ART'S GREATEST HITS, Jan 94

**Overall collection:**  ClickArt Studio Series; T/Maker Company, 415/962-0195; \$99.95 per volume.  
 Electronic Clipper subscription service; Dynamic Graphics, 800/255-8800; \$67.50 per month.  
 Metro ImageBase Electronic Clip Art; Metro ImageBase, 800/525-1552; \$74.95 per volume, CD-ROM

\$149.95.  Images with Impact series; 3G Graphics, 800/456-0234; \$99.95 to \$129.95 per volume, CD-ROM \$499.  
 Typographers' Ornaments; Underground Grammarian, 609/589-6477; \$25 per volume; ten TIFF albums \$200; EPS volumes \$50 each.



### DRAW PROGRAMS (LOW-COST), Sep 93

**Budget draw:** Expert Draw; Expert Software, 305/567-9990; \$49.95.  
**Budget draw/paint:** UltraPaint; Deneba Software, 305/596-5644; \$79.  
**Beginners' program:** Aldus SuperPaint; Aldus Consumer Division, 619/558-6000; \$149.95.  
**Overall:** Canvas; Deneba Software, 305/596-5644; \$399. 


### FONT BUYERS' GUIDE, Mar 94

**Text-face collection:** Type On Call CD-ROM; Adobe Systems, 415/961-4400; \$99 (this price includes the ability to unlock two families from preselected packages); an additional \$25 enables you to unlock individual faces, or \$69 to \$179 for unlocking families.  
**Display/decorative-face collection:** Fontek; Letra-set, 201/845-6100; \$39.95 per face.  
**Bargain collection:** Monotype ValuePack; Monotype, 312/855-1440; \$89 for 57 fonts.

### IMAGE DATABASES, Oct 93


 Aldus Fetch 1.0; Adobe Systems, 206/628-5739; \$295.  
 Multi-Ad Search 2.0; Multi-Ad Services, 309/692-1530; \$249.

### IMAGE EDITORS, Feb 95

Adobe Photoshop 3.0; Adobe, 415/961-4400; \$895. 

## INTEGRATED SOFTWARE

### INTEGRATED SOFTWARE, Feb 94

ClarisWorks; Claris Corporation, 408/727-8227; \$299. 



## ONLINE SERVICES

### ONLINE SERVICES, Aug 94

**E-mail:** America Online; America Online, 703/893-6288; basic monthly fee \$9.95.  
**Reference:** CompuServe; CompuServe Information Service, 614/457-0802; basic monthly fee \$8.95.

## ORGANIZATION/PRODUCTIVITY

### CALENDARS, Jul 93


**Alarm system:**  First Things First; Visionary Software, 503/246-6200; \$79.95.  Smart Alarms Plus; JAM Software, 203/630-0055; \$75.

Vendors: Please write to *Macworld Editors' Choice*, 501 Second St., San Francisco, CA 94107, or send a fax to 415/442-0766 to inform us of changes in your phone number or your product's list price.



**All-around scheduler:** Now Up-to-Date; Now Software, 503/274-2800; \$99.

**Meeting scheduler:** Meeting Maker; On Technology, 617/374-1400; five-pack \$495.

### GRAPHING SOFTWARE, Aug 94

DeltaGraph Pro 3 3.0.4; DeltaPoint, 408/648-4000; \$195. 

### SALES-AUTOMATION SOFTWARE, Oct 93


 Contact Ease; WestWare, 619/274-5053; one user \$395, five users \$1495.  
 CBS; Colleague Business Software, 512/345-9964; \$495.

### TEXT-RETRIEVAL SOFTWARE, Dec 93

**Small system:** On Location; On Technology, 617/374-1400; \$129.  
**Multiuser system:** Personal Librarian; Personal Library Software, 301/990-1155; \$995.

## PRESENTATION TOOLS

### PRESENTATION SOFTWARE, Jul 94

Persuasion 3.0; Adobe Systems, 206/622-5500; \$495. 

## UTILITIES


### BRAVE NEW DOCUMENTS, Jan 94

**Application-independent document distribution:** Common Ground; No Hands Software, 800/598-3821; \$189.95.  
**Book-length documents:** FrameReader; Frame Technology, 800/843-7263; \$84.95.

### PRINTING, Sep 93


**PC-printer cable packages:** PowerPrint; GDT Softworks, 604/291-9121; \$149.

### VIRUS KILLERS, Jul 94

**Commercial software:** Virex; Datawatch, 919/549-0711; \$99.95.   
**Free software:** Disinfectant; free from various online services.


## VIRTUAL MEMORY SOFTWARE

### VIRTUAL MEMORY, Jun 94



**Virtual memory software:** Virtual 3.0; Connectix Corp., 415/571-5100; \$99.  
**Memory-boosting software:** RAM Doubler 1.0.1; Connectix Corp., 415/571-5100; \$99. 

## WORD PROCESSORS

### HIGH-END WORD PROCESSOR (for fast 68040 Macs and Power Macs), Mar 95

Microsoft Word 6.0; Microsoft Corporation, 206/882-8080; \$325. 

### LOW-COST WORD PROCESSOR, Mar 95


MacWrite Pro; Claris Corporation, 408/727-8227; \$99.  



# Star Ratings

HARDWARE AND SOFTWARE REVIEWS AT A GLANCE

Edited by Wendy Sharp


*Macworld Star Ratings* lets you compare Macintosh products by providing summaries of *Macworld's* authoritative product reviews from the past year. The number of stars indicates quality; our reviewers assign five stars to outstanding products and one star to poor ones. The  symbol indicates that a product is available in a native Power Mac version.

If a product has been upgraded since our last review, the most recent version number supplied by the vendor appears in parentheses after the reviewed version number. To read a full review of any product in the listing, please consult the issue listed at the end of each synopsis.

Vendors: Please write to *Macworld Star Ratings*, 501 Second St., San Francisco, CA 94107 to inform us of changes in the version number or list price of your product, or of changes to your phone number.

## Software

### BUSINESS TOOLS

★★★★ **4D First 1.0 (1.0.1), ACI US, 408/252-4444, \$295.** This entry-level relational database is a low-cost way to distribute the power of 4D and 4D Server to an office full of Macs. May 94 

★★★★ **AccuZip 6 1.8.7, Software Publishers, 800/233-0555, \$689.** Bulk-mail software has informative progress indicators, batch and individual processing, low rates, and flexible parsing during import, but the interface is incomprehensible. Sep 94

★★ **Adobe Acrobat 2.0, Adobe Systems, 415/961-4400, \$195.** The font fidelity of this portable-document software is uneven, and the software demands too much in resources compared with other options. Mar 95


★★★★ **Adobe Acrobat for Workgroups 2.0, Adobe Systems, 415/961-4400, \$1595.** As a collaboration tool, this software is relatively inexpensive and offers well-done annotation tools. However, it's resource-intensive, and creating hypertext documents with it isn't easy. Mar 95


★★ **BaseMap 1.0.1, GeoPoint, 415/957-1560, \$149.** For simple maps displaying simple data, this map-making tool may be useful. It's not for the cartographic sophisticate, however. May 94

★★ **Bulk Mailer CASS 1.00d, Satori Software, 206/443-0765, \$150.** Unattended operation is possible with this bulk-mail software, but batch processing is slow and the program has coding problems. Sep 94

★★★★ **CA-Cricket Graph III 1.52, Computer Associates International, 516/342-5224, \$129.** Graphing software's features are just right for charts in the physical and social sciences, but lack pizzazz. The program

is easy to learn and use, and includes math features for data transformations and curve fitting. Dec 94

★★★★ **ClarisImpact 1.0 (1.0 v3), Claris Corp., 408/727-8227, \$399.** Business graphing, project management, object-oriented drawing, word processing, and presentation functions merge in this business graphics software. The outstanding integration offers versatility that dedicated programs are pressed to match. Jun 94 


★★★★ **ClarisWorks 3.0, Claris Corp., 408/727-8227, \$129.** Inexpensive, easy to use, and powerful integrated software is the best package available. It's far better in terms of features, speed, integration, and use of system resources than its competition. Feb 95 

★★★★ **Crystal Ball 3.0, Decisioneering, 303/449-5177, \$295.** Compact business-simulation software is fast enough for complex projects and can pay for itself in disaster-avoidance in a variety of business tasks. Oct 94

★★★★ **Decision Analysis 2.5, TreeAge, 800/254-1911, \$379.** Decision-assistance software handles complex business cases by constructing tree diagrams of probabilities and payoffs. It offers a type of modeling that is realistic and easy to modify. Nov 94

★★★★ **Extend+BPR 3.0, Imagine That, 408/365-0305, \$990.** Business-modeling software includes superior templates for business-process reengineering, but some programming experience is helpful. Oct 94

★★★★ **FastTrack Schedule 2.1, AEC Software, 703/450-1980, \$279.** Simple project-management software is ideal for managers who need to put together a schedule quickly and easily, but if you require more power to manage conflicts, you'll need a more comprehensive program. Sep 94

★★★★ **Helix Express 2.0.1 (2.0.4), Helix Technologies, 708/465-0242, \$589.** Icon-based relational-database software's improved performance makes it a serious competitor for all-Mac networks. Especially notable is its much faster speed; multiuser operation is downright snappy. Jul 94 


★★★★ **InfoDepot 2.0, Chena Software, 610/770-1210, \$295.** All-in-one program for project planning includes tools for brainstorming and organizing ideas; scheduling project steps; and entering, calculating, and presenting data. It does a good job but has some flaws. Jan 95

★★★★ **Map II 1.5, ThinkSpace, 519/858-5047, \$395.** Well-structured program has most of the functions a simple geographical information system needs and is suitable for introductory instruction in GIS. May 94

★★★★ **MarcoPolo 3.0, Mainstay, 805/484-9400, \$895.** Full-featured document-management system is significantly improved. The addition of OCR—both the handling of unrecognized words and the ability to batch-process TIFF files with OCR—make it very usable. Jan 95

★★★★ **MicMac 2.0v1, Nirvana Research, 408/459-9663, \$89.** The concept of Mac as dictation ma-

chine is undeniably attractive, and Nirvana Research has pulled it off well. It takes lots of hard drive space to save recordings, though. Nov 94

★★★★ **Microsoft Excel 5.0, Microsoft Corp., 206/882-8080, \$339.** Although the feature set of this Power Mac spreadsheet is stunningly rich, the system requirements for a full install are jaw-dropping, including 27MB of hard drive space plus 24MB of RAM without virtual memory. Still, it is relentlessly complete. Jan 95 

★★★★ **Microsoft Works 4.0, Microsoft Corp., 206/882-8080, \$99.95.** Although this isn't the best integrated package around, it's a sensible, low-cost choice. It offers a respectable word processor, database, spreadsheet, calendar, and address book, as well as a slide-show module, and drawing and communications tools. Jan 95

★★★★ **Pablo 2.0.1 (2.03), Andyne Computing, 613/548-4355, \$695.** Effective end-user data-reporting tool creates a considerable workload but sidesteps the hassles of SQL data access and produces great reports with minimal effort. Jul 94

★★★★ **Street Atlas USA 2.0, DeLorme Mapping, 207/865-1234, \$169.** For the most part, this geographical information software delivers what it promises at a great price. Oct 94

★★★★ **TeamFlow 3.1, CFM, 617/275-5258, \$295.** Total Quality Management flowchart software is a valuable business tool. Its report printing and customizability are limited, however. Nov 94

★★★★ **TopDown 4.0 (4.1), Kaetron Software Corp., 713/298-1500, \$345.** Flowcharting program's support for custom symbols and automatic drawing aids, along with its ability to let you easily create and navigate lower-level charts, make it a productive tool. Jul 94

★★★★ **ZipZapp 1.0, True Basic, 603/298-8517, \$39.95.** You can use this data-reference utility to find an area code, the correct spelling of a city's name, and more. The interface is intuitive, and the cost, low. Oct 94

★★★★ **ZP4 12.1 (14), Semaphore Corp., 408/688-9200, \$125.** Inexpensive bulk-mail software supports batch and individual processing, but the progress indicators are uninformative, and unattended operation requires extra work. Sep 94

### COMMUNICATIONS/NETWORKS

★ **BLAST Professional, BLAST Inc., 919/542-3007, \$139.** Our reviewer could not get this telecom software to work reliably and consistently during his tests, and found the minimalist and quirky interface frustrating. Jan 95

★★ **HoloGate 1.0, Information Access Technologies, 510/704-0160, \$500.** Two unique features—UUCP and Usenet news distribution—are the *continues*



# Star Ratings

primary reasons to consider this product. Otherwise, it comes up price-rich and feature-poor. Apr 95

★★ **The Internet Companion, The Voyager Company, 914/591-5500, \$29.95.** Well-written, HyperCard-based electronic book offers less information than others. Internet access is available through accompanying software, but it's a terminal-emulation screen. Dec 94

★★★★ **Internet Explorer Kit and Internet Starter Kit, Hayden Books, 317/581-3500, \$29.95 each.** Well-written books and useful software combine to produce one of the best introductions to the Internet available for Mac users. Dec 94

★★★★ **Internet Membership Kit, Ventana Media, 919/942-0220, \$69.95.** If you need access to the Internet, this book and software combination is a good package. The best part about it is its included preconfigured software. Dec 94

★★★★ **MicroPhone Pro 2.0, Software Ventures Corp., 510/644-3232, \$295.** The new feature set of this communications package includes multiple sessions, faxing, TCP/IP networking, and more, but it's a mixed bag. Not all the features are well integrated, although some are innovations for which users will be grateful. Oct 94

★★★★ **NetWorks 3.0.4, Caravelle Networks Corp., 613/225-1172, \$1395 to \$2495.** For networks that sprawl across buildings or states, this network-monitoring utility is an indispensable tool. It continually polls devices, checking CPUs, routers, printers and hubs for signs of life. Apr 95

★ **PowerShare Collaboration Servers, Apple Computer, 408/996-1010, \$999.** Before this collaboration software will be ready for prime time, Apple needs to overhaul the complex Admin application, add serious diagnostic aids, provide comprehensive documentation, and offer knowledgeable technical support at a price less than that of the program itself. Aug 94

★★★★ **QuickMail 3.0, CE Software, 515/221-1801, \$199 to \$3799.** If you're shopping for a first-time E-mail application, this product is a good choice for ease of use and setup. The most promising new tool, rules-based messaging, lacks some important features. Jan 95

★★★★ **RunShare, Run, Inc., 408/353-8423, \$199 to \$2499.** System extension endeavors to pump up file-transfer speeds across both local- and wide-area networks. It offers twofold to threefold throughput gains for fast Macs and large files but is less useful with small files or slow Macs. Feb 95

★★★★ **Snap Mail 1.0.1, Casady & Greene, 408/484-9228, \$200 to \$1440.** Software will put you on the electronic-mail trail more easily and more cheaply than any competing product, if you can live with some minor (but surprising) shortcomings. Jun 94

★★ **SoftWindows 1.0, Insignia Solutions, 415/694-7600, \$499.** You can run Windows software on a PowerMac with this emulation software, but although it's a viable solution, you pay the price in terms of performance, compatibility, and actual cost. Aug 94

★★★★ **Timbuktu Pro 1.0 (1.05), Farallon Computing, 510/814-5000, \$199 to \$1999.** Terminal emulation product is a must-have for people who need direct connection to computer systems on a variety of networks. May 94

★★ **TrafficWatch II 2.0 (2.1), Neon Software, 510/283-9771, \$495.** The price of this AppleTalk traffic monitor is closer to that of full-blown network analyzers that do much more, albeit with greater complexity. Without printing, alarms, triggers, or true multiprotocol support, this product misses the mark. Jun 94

★★★★ **White Knight 12.0, The FreeSoft**

**Company, 412/846-2700, \$139.** While this telecom software can be bewildering, it works impressively well. If you're willing to read the manual from cover to cover, the program may become your favorite telecom tool. Nov 94

## DESKTOP PUBLISHING

★★ **CheckPost 1.3, Working Software, 408/423-5696, \$249.95.** Interface aside, this imagesetter-simulation software is generally disappointing. It can't automatically scale pages, it prints on a single sheet, and its error reporting is limited. Nov 94

★★★★ **ClickBook 1.1, BookMaker Corp., 415/354-8161, \$69.95.** If you need to create inexpensive booklets quickly and without hassle, this print utility that helps you format documents in double-sided booklet form is an excellent tool. Nov 94

★★★★ **Download Mechanic 1.0.2, Acquired Knowledge, 619/587-4668, \$249.** The strengths of this PostScript downloader lie in its tools for dealing with problem files, but when dealing with large files, it performs slowly and occasionally crashes. Feb 95

★★★★ **FontChameleon 1.0.1 (1.5), Ares Software Corp., 415/578-9090, \$295.** Font utility introduces a new font-creation technology; it builds serif and sans serif fonts from a master outline file. It offers high-quality renditions of popular fonts, plus the ability to customize fonts. Sep 94

★★★★ **FontMixer 1.0, Monotype Typography, 312/855-1440, \$79.** Although a tad expensive for a one-trick pony, this font utility is a straightforward, relatively painless way to mix characters from different fonts to create composite fonts. Oct 94

★★★★ **Fontographer 4.0.4 (4.1), Altsys Corp., 214/680-2060, \$495.** No other font editor does more or works better than this one. For the price of a few font families, it can give you a universe of unique faces. Oct 94

★★★★ **LaserCheck 1.0, Systems of Merritt, 205/660-1240, \$199.** Imagesetter-simulation software can save you hundreds of dollars, and many hours, on imagesetting jobs by letting you use a laser printer to proof your work. Nov 94

★★★★ **Let'er RIP 2.0, Lupin Software, 916/756-7267, \$239.** The flexibility, clean implementation, and attention to detail of this PostScript downloader make it a pleasure to use. Feb 95

★★★★ **PageTools 1.0, Extensis Corp., 503/274-2020, \$129.** Collection of ten PageMaker Additions is packed with utility. Many users will find the PageAlign, PagePrinter, and PageRulers Additions alone worth the price, and the others frosting on the cake. Dec 94

★★★★ **ReadySetGo 6.0.2, Manhattan Graphics Corp., 914/725-2048, \$395.** There's no strong reason not to use this desktop publishing software if its tools meet your needs, but there's no compelling reason to choose it, either. Its low price is nice, but not enough. Oct 94

## EDUCATION/ENTERTAINMENT

★★★★ **A.D.A.M. The Inside Story, A.D.A.M. Software, 404/980-0888, \$79.95.** Multimedia anatomy CD-ROM teaches basic anatomy and physiology with a tantalizing mix of sound, graphics, and animation. If you are the least bit interested in learning more about how the human body works, buy this program. Mar 95

★★★★ **Aquazone 1.0, Inago, 416/487-4005, \$79.95.** The fish in this aquarium simulation are beautiful,

but they're darned hard to keep alive. Only two varieties of fish are included. Jan 95

★★★★ **Creative Writer 1.0, Microsoft Corp., 206/882-8080, \$64.95.** Graphics/page-layout/word-processor hybrid offers some terrific type effects, zany sounds, and bright graphics. While it doesn't teach kids to be better writers, it does encourage them to develop ideas and provides a fun vehicle to express those ideas creatively. Sep 94

★★★★ **Crossword Wizard 1.0, Cogix Corp., 415/454-7217, \$49.95.** If you're a crossword fan, this crossword-puzzle generator is a must. Although it's not perfect, the play mechanics are fantastic. Dec 94

★★★★ **The Cruncher, Davidson & Associates, 310/793-0600, \$59.95.** If you want to teach a child spreadsheet basics, this combination educational spreadsheet and business application will do the job. It's creative and easy to use, but slow. Aug 94

★★★★ **Crystal Crazy, Casady & Greene, 408/484-9228, \$49.95.** Ultraglossy, superpolished version of the classic Crystal Quest is challenging and fun without being overly difficult. Each level retains some old elements, and adds some new ones to keep you on your toes. Jun 94

★★★★ **CyberBoogie, Times Mirror Multimedia, 314/531-2503, \$49.95.** The easy interface, bouncy songs, and cute graphics of this children's animation software make it a good choice for very young kids, but its relative lack of features restricts it to the same group. Apr 95

★★★★ **Firefall Arcade 1.0 (1.0.2), Inline Software, 617/935-1515, \$49.95.** If you loved the classic video game Centipede, or are just looking for a fun shoot-'em-up, this arcade-style game will satisfy. Jun 94

★★★★ **Grolier Multimedia Encyclopedia, Grolier Electronic Publishing, 203/797-3530, \$395.** CD-ROM encyclopedia has excellent search capabilities, weighs much less than a shelf of books, and is lots of fun. Its timeliness and some hierarchical snafus were slight problems. Jul 94

★★★★ **Kids World, Bit Jugglers, 415/968-3908, \$30.** Although the painting tools could be more robust, this screen-saver-creation tool for kids is easy to use, cleverly designed, and can keep kids busy for hours. Mar 95

★★★★ **SimCity 2000, Maxis Software, 510/254-9700, \$54.95.** In essence, your goal with this marvelous city-simulation software is to build a city and run it successfully. The game is fascinatingly complex, but it's simple to use, and the elaborate graphics are so lovely that it's even fun just to watch. Jun 94

★★★★ **Small Blue Planet 1.2.1, Now What Software, 415/885-3432, \$79.95.** Nicely integrated collection of beautiful Earth-from-space images on CD-ROM lacks many features of standard atlases and doesn't have a search function, but is endlessly fascinating. Jul 94

★★★★ **Spin Doctor (1.0), Callisto Corp., 508/655-0707, \$59.95.** In the tradition of the best Macintosh games, this game tests your wits and reflexes alike. It's part strategy game, part kinetic sculpture. Jun 94

★★★★ **WarPlanes 1.0, Maris Software, 800/336-0185, \$69.** Wonderful multimedia CD-ROM tours the post-WWII era in military aviation. As well as pictures and text, it includes rotatable models of aircraft, an extensive database, campaign maps, historical narration, live combat audio, and three flight simulators. Mar 95

★★★★ **Widget Workshop, Maxis Software, 510/254-9700, \$44.95.** Fiendishly clever mad scientist's laboratory allows you to build Rube Goldberg-style widgets out of metronomes, switches, light bulbs, and much more. It encourages imagination and exploration, plus kids think it's cool. Apr 95



## FINANCE/ACCOUNTING

★★ **Financial Competence 1.5, Competence Software, 603/435-5098, \$99.** Business economics tutorial explains how financial statements are compiled and how they relate to each other. Jul 94

★★★★ **MacMoney 4.01, Survivor Software, 310/410-9527, \$89.95.** Personal-finance software has new and improved features that will please longtime users, but it hasn't kept up with the leaders in the field and won't win many new converts. Jul 94

★★★★ **Managing Your Money 6.0, MECA Software, 203/255-1441, \$79.95.** Personal-finance program does a good if somewhat roundabout job of keeping track of your total financial picture. Although it isn't as easy to use as the competition, it excels in tax, investment, and financial planning. Jun 94

★★★★ **Quicken 5.0, Intuit, 415/322-0573, \$49.95.** The addition of a calendar and new ease-of-use features keep this personal finance software comfortably ahead of the pack. This upgrade is an incremental, but still welcome, improvement over an already excellent product. Feb 95

★★★★ **StreetSmart 1.0, Charles Schwab & Company, 800/334-4455, \$59.** If Schwab is where you want your investments held, and if you want to have tighter control over your portfolio and save on brokerage fees, you should seriously consider this financial investment software. Feb 95

## GRAPHICS

★★★★ **Adobe Dimensions 2.0, Adobe Systems, 415/961-4400, \$199.** 3-D effects software has added color support, as well as drawing and text tools. Its ability to create resolution-independent 3-D images and map two-dimensional art earn Dimensions a place on a designer's hard drive. Apr 95

★★★★ **Adobe Illustrator 5.5, Adobe Systems, 415/961-4400, \$595.** Despite slight speed disappointments, this draw program's upgrade is a bargain. It includes more than 200 tile patterns, 220 fonts, and the Acrobat Distiller and Exchange utilities. Sep 94

★★★★ **Adobe Photoshop 3.0, Adobe Systems, 415/961-4400, \$895.** Image-editing program both broadens its capabilities and simplifies its work environment in this dynamic upgrade. While not perfect, the pros far outweigh the cons. Jan 95

★★ **Art Explorer 1.0, Aldus Consumer Division, 619/558-6000, \$49.95.** While its cartoon style is refreshing and its features promising, this paint/draw program for kids 8 to 12 years old is still rough around the edges. Its biggest limitation is that it's unusably slow on 68030 Macs. Feb 95

★★★★ **Blueprint 5.0, Graphsoft, 410/290-5114, \$295.** For plain old 2-D drafting, this CAD software has a rich, easy-to-use feature set and is admirably fast. The Power Mac version in particular is a first choice for large architectural or engineering diagrams. Jan 95

★★ **Claridraw 1.0, Claris Corp., 408/727-8277, \$399.** For presentations without grand artistic pretensions, this draw program can be an effective tool. Considering the wobbliness of some of its features, however, \$400 may be too much to pay. Jan 95

★★ **Dabbler 1.0, Fractal Design Corp., 408/688-5300, \$99.** Art-education and paint software provides an excellent paint set with an appealing if slightly quirky interface, at a great price. Nov 94

★★★★ **DeBabelizer Lite 1.0 (1.1), Equilib-**

**rium Technologies, 415/332-4343, \$129.** Terrific graphics utility converts graphics files from one format to another. It offers a choice selection of capabilities at a nice, slim price. Aug 94

★★★★ **DesignWorkshop 1.0 (1.1), Artifice, 503/345-7421, \$895.** The accessible interface and versatile modeling environment of this 3-D modeling software may be worth the fairly high price, particularly for architectural-design conceptualization. May 94

★★★★ **ElectricImage Animation System 2.0, Electric Image, 818/577-1627, \$7495.** Although the price may seem incredibly high, this software, with its extraordinary animation and image-rendering capabilities, is worth every penny for cinematic-production professionals. Dec 94

★★ **Flying Colors, Davidson & Associates, 310/793-0600, \$40.** While not the most dynamic kids' program, this paint/draw program provides easy-to-use tools and nicely drawn stamps for ages eight to adult. Feb 95

★★★★ **IntelliDraw 2.0, Adobe Systems, 619/558-6000, \$129.** Wonderful general-purpose graphics package works well, does a great job of automating drawing tasks, and is straightforward. Despite its breadth of features, it always feels approachable. Sep 94

★★★★ **Kai's Power Tools 2.0a (2.1), HSC Software, 310/392-8441, \$199.** Phenomenally powerful suite of Photoshop plug-ins have an addictive quality typically associated with arcade games. There's no end to the automated effects you can generate and the artwork you can create. May 94

★★ **Koyn Fractal Studio 2.02 (2.1), Koyn Software, 314/878-9125, \$119.95.** Software lets you generate beautiful fractals of your own design. It's a reasonable choice if you are interested in Sierpinski triangles or naturalistic forms, but it's not an all-fractals-for-all-people program. Aug 94

★★★★ **KPT Bryce 1.0, HSC Software, 805/566-6200, \$199.** For less than \$200, you get a remarkable 3-D landscape-rendering program, a CD-ROM full of images, a slide-show utility, and even some screen-saver modules. Although the innovative, graphics-heavy interface can be confusing, this software is lots of fun. Dec 94

★★ **Live Picture 1.5.5, HSC Software, 805/566-6200, \$3995.** At its core, this image editor is a promising program rather rudely assembled atop some marvelous technology and burdened by an extremely high price tag. Though fast and blessed with all the benefits of a proxy-based system, its day-to-day functions leave plenty of room for improvement. Dec 94

★★★★ **LogoMotion 1.0, Specular International, 413/253-3100, \$149.** Easy-to-use 3-D package is eminently affordable. It's a terrific program, both for creating flying logos and as an entry-level 3-D package for nonprofessionals. Nov 94

★★★★ **MacDraft 4.0, Innovative Data Design, 510/680-6818, \$449.** Report-links to Excel and a clean interface make this 2-D CAD software an excellent choice for use in mechanical engineering and construction. Plus, it's easy to learn. Mar 95

★★★★ **MacroModel, Macromedia, 415/252-2000, \$1495.** This 3-D modeling software is a solid resource to have along when you venture out into 3-D space. The interface is elegantly simple. May 94

★★★★ **MetaFlo, The VALIS Group, 415/435-5404, \$595.** Graphics utility yields interesting visual effects with a minimum of fuss. It imparts elasticity to 2-D images, letting you push and pull collections of pixels while retaining the visual integrity of the image. Aug 94

★★★★ **MiniCad 5, Graphsoft, 410/290-5114,**

**\$795.** Excellent CAD software for the Power Mac offers major performance for its price. It's admirably easy to learn. Nov 94

★★★★ **Paint Alchemy 1.0, Xaos Tools, 415/487-7000, \$99.** For the price, these plug-in graphics effects are a tremendous value that both casual users and professional artists can use to design a little chaos into their work. May 94

★★★★ **Painter 3, Fractal Design Corp., 408/688-8800, \$499.** Image-creation program has achieved a rare state of perfection, balancing enhanced conventional controls with spectacular effects packaged inside a tidy interface. It offers a new level of usability and genuine practicality. Apr 95

★★★★ **PhotoEnhancer 1.0, PictureWorks, 510/855-2001, \$129.** Nifty utility provides dozens of ways to improve the quality of QuickTake photos, from sharpening or softening focus to correcting over- or underexposed shots. Apr 95

★★ **PhotoMatic 1.01, DayStar Digital, 404/967-2077, \$199.** AppleScript-based utility lets you automate tasks in Adobe Photoshop 2.5.1 or later. Although it's limited, it can relieve you of some mundane chores. Nov 94

★★★★ **Pixar Typestry 2.1, Pixar, 510/236-4000, \$299.** With QuickDraw GX support, an approachable interface, a strong array of animation features, and outstanding image quality, this 3-D type-effects software is worth a try. It adds a new dimension to the way you look at type. Feb 95

★★★★ **PixelPaint Pro 3.01, Pixel Resources, 404/449-4947, \$379.** Color paint program strikes a good balance between the artistic demands of painting and the technical precision of image processing. Mar 95

★★ **Pointillist, Pictor GraFX, 310/865-0495, \$39.95.** Stereogram software creates images that look, at first glance, like random dots, but as you focus beyond the page, a 3-D image emerges from the pattern and appears to hover inches in front of the background. It's gleefully wacky. Jul 94

★★ **Ray Dream Designer 3.1.1, Ray Dream, 415/960-0768, \$349.** 3-D graphics program provides competent (if sometimes awkward) modeling tools, offers excellent surface-texturing capabilities, and produces high-quality ray-traced renderings. Mar 95

★★ **ScanPrepPro 1.2, ImageXpress, 404/564-9924, \$695.** Adobe Photoshop add-on automates the scanning and image-messaging process and produces good results, although the program is somewhat unstable. Nov 94

★★★★ **Scenery Animator 1.0.4 (1.1), Natural Graphics, 916/624-1436, \$149.** Landscape rendering and animation software uses U.S. Geographical Survey data to create remarkably realistic 3-D representations of terrain. Its flaws are few, and our reviewer recommends it. Aug 94

★★ **Specular Collage 2.0.1, Specular International, 413/253-3100, \$399.** Practical image-compositing solution supplies a smooth interface and strong support for Adobe Photoshop 3.0. As long as you're willing to return to Photoshop to confirm your edits and make final changes, it's a serviceable tool. Feb 95

★★ **Terrazzo 1.0, Xaos Tools, 415/487-7000, \$199.** Turning a random group of pixels into a geometric pattern may not be everyone's consuming passion, but this plug-in graphic-effects module has definite appeal for a select niche of fabric, graphic, and video designers. Nov 94

*continues*



# Star Ratings

★★★★ **TextureScape 1.5, Specular International, 413/253-3100, \$195.** Algorithmic art program lets you manipulate and arrange PostScript shapes to create seamlessly repeating patterns. Like the best tools, it's simple enough to be fun and flexible enough to give you meaningful control. Feb 95

★★★ **Typestry 2.0 (2.1), Pixar, 510/236-4000, \$299.** An approachable interface, animation support, and outstanding Renderman rendering technology make this 3-D type-renderer a popular choice. This version improves on the original, but still lacks canned positioning effects. Jun 94

★★★★ **TypeTwister 1.0, Adobe Systems, 415/961-4400, \$29.95.** Inexpensive, easy-to-use, and fun type styler lets you create wildly styled text effects, although it won't satisfy hard-core type manipulators. Jan 95

★★★ **Virtus WalkThrough Pro 2.0, Virtus Corp., 919/467-9700, \$495.** Aside from occasional stumbles, this design tool is an exceptional program that lets you quickly and intuitively interact with your designs and gives clients the opportunity to visit and explore your creations before they are built. Apr 95

★★★ **Vistapro 3.0, Virtual Reality Laboratories, 805/545-8515, \$149.95.** 3-D landscape rendering software uses digital versions of U. S. Geological Survey maps to create images and allows you to add external features such as buildings and rivers. Although it's a good program, it has some limitations. Feb 95

## MATH/SCIENCE

★★★★ **Chamber Works 1.0.2 (1.1), OnScreen Science, 617/776-6416, \$99.** Simulator for particle-physics events is the best introduction to particle physics yet produced, at a great price. Dec 94

★★★★ **JMP 3.0, SAS Institute, 919/677-8000, \$695.** This statistics software can be used for a wide range of biological, chemical, and physical-science investigations. New features include floating tool palettes, an annotation tool for data tables, and an experimental-design module. Sep 94

★★★ **Kekulé 1.1, PSI International, 410/821-5980, \$495.** Science software reads scanned chemical-structure drawings and interprets them, giving both a diagram for checking interpretation accuracy and a formal string representation of the structure. Nov 94

★★★★ **LabView for Mac 3.0.1, National Instruments, 512/338-9119, \$1995.** For large-scale, demanding projects in data acquisition and analysis, this scientific software is an unchallenged standard. Jul 94

★★★ **Maple V 3.0, Waterloo Maple Software, 519/747-2373, \$795.** If you prefer to do your own programming and function creation, you'll benefit from this symbolic mathematics software's efficient use of your Mac's resources. This version hits most of the points on your symbolic-math wish list. Oct 94

★★★★ **MATLAB 4.1, The Math Works, 508/653-1415, \$1695.** Relatively expensive numerical math software has added nearly 100 new graphics commands, improved its treatment of sparse matrices, and added commands for sound processing. Its toolboxes make it a first choice for many applied-science specialties. Nov 94

★★★★ **MLab, Civilized Software, 301/652-4714, \$1495.** Mathematical-modeling software lets you do fast computation on numerically complex real-world problems, using an ancient Mac II or higher. You must be willing to write short programs, but professional researchers will find it a rewarding choice. Apr 95

★★★★ **Resampling Stats 1.0, Resampling**

**Stats, Inc., 703/522-2713, \$225.** Innovative statistics software has proved itself to be a superior teaching tool in numerous classroom tests. If you have any interest in statistics, you should give this admirably straightforward approach careful consideration. Jun 94

★★★★ **SerePlot 2.12, Scientific Visions, 301/593-0317, \$135.** If you have piles of data and don't need animated, exploding bar-charts in 24-bit color, this scriptable plotting software should be part of your analysis tool kit. Jun 94

★★★★ **Spyglass Plot 1.0, Spyglass, 217/355-6000, \$295.** This scientific-charting software is the first choice for serious large-set plot crunching. Oct 94

★★★★ **Statistica/Mac 4.1, StatSoft, 918/583-4149, \$695.** At present, this statistical software is the undisputed features-per-dollar champion in the Mac market. Mar 95

★★★★ **SuperScope II 1.25, GW Instruments, 617/625-4096, \$1490.** Despite a relatively small instrument library, this laboratory data-acquisition software effectively covers a wide range of needs, and learning to use it won't become your life's work. Oct 94

★★★★ **Survival Tools 1.0, Abacus Concepts, 510/540-1949, \$295.** The combination of survival analysis with the StatView template systems gives you a virtual actuary-in-a-box. It's a great set of tools, conveniently packaged. Feb 95

## ORGANIZATION/PRODUCTIVITY

★★★ **ACT 2.0, Symantec Corp., 503/334-6054, \$249.95.** Contact manager's file-level compatibility with DOS and Windows and its complete contact management make it worth considering if you can live with its weak scheduling functions. Mar 95

★★★★ **Arrange 2.0, Common Knowledge, 415/325-9900, \$349.** If your needs fall beyond the usual calendar and address-book functions, this personal information manager is a strong contender. It now has more calendar functions and print options. Dec 94

★★★ **Claris Organizer, Claris Corp., 408/727-8227, \$99.** New personal information manager users, lured by the low price, good performance, and ease of use of this product, will find that it meets their needs. Most longtime PIM users won't be tempted to switch. Jan 95

★★★★ **DateBook & TouchBase Pro Bundle 4.0, Adobe Systems, 619/558-6000, \$89.99.** Personal information manager package is now easier to use and offers many new features. The excellent linking between contacts and calendar is the most significant feature. Sep 94

★★★ **DateView 1.0.1 (1.0.2), Advanced Software, 515/225-4163, \$99.95.** If you're willing to sacrifice some features to get simplicity and speed, this calendar/to-do manager makes sense. It integrates with the contact manager. InTouch. Aug 94

★★★ **Dynodex for Macintosh 3.5, Portfolio Software, 802/434-6400, \$69.95.** Although this program doesn't currently link to a calendar, it is an excellent contact manager. This upgrade has a few new features, improved performance, and an easier-to-use interface. Sep 94

★★★ **Expresso 1.0, Berkeley Systems, 510/540-5535, \$69.99.** The just-the-basics approach of this calendar and address book might be just fine for people who don't need the feature set of other calendar programs and enjoy its graphics. Apr 95

★★★★ **FastPace Instant Contact 1.0, Foresight Technology, 817/731-4444, \$79.99.** Although this

contact manager could use a few additional features—especially a menu-bar search function—it does a capable job, and it is intuitive and easy to use. Jan 95

★★★ **First Things First Proactive 1.1, Visionary Software, 503/246-6200, \$149.** Capable scheduling program has some convenient features. It's worth a look if you don't have to share information with a contact manager. Nov 94

★★★★ **Full Contact 2.01 (2.02), FIT Software, 408/562-5990, \$169.** Personal information manager can handle with speed and style tasks that would choke other products, but frequently, using it feels like a full-time job. Aug 94

★★★★ **In Control 3.0.4, Attain Corp., 617/776-1110, \$85.** Excellent to-do-list manager and outliner, coupled with a good calendar is a strong choice if you live and die by to-do lists. Oct 94

★★★★ **Now Contact and Now Up-to-Date 3.0, Now Software, 503/274-2800, \$99.** Taken together, this contact manager and calendar provide a set of solid, reliable tools for keeping your life in order. Users who need to share information over a network may find it close to ideal. Apr 95

★★ **Souvenir 2.2, ComposeTel, 415/327-0744, \$49.** While this contact manager is fast and simple, it's hard to recommend it when you can buy integrated contact managers and schedulers for about the same price. Dec 94

★★★★ **TimeSquare 1.0, Team Building Technologies, 514/278-3010, \$149.** Fast, flexible, network calendar program has lots of handy features, but it's missing a few as well, such as multiday events and label grouping. Aug 94

## PRESENTATION TOOLS

★★★★ **Adobe Premiere 4.0, Adobe Systems, 415/961-4400, \$795.** Video-editing software for the Power Mac remains as solid and reliable as previous versions, and also advances far and above its competitors with new and improved professional-level features. With the right hardware, it can give desktop-video editors broadcast-quality products with a minimum of compromises. Dec 94

★★★★ **Amazing Animation, Claris Corp., 408/727-8277, \$59.** Cute pictures, funny sounds, and a kid-friendly interface come together in this package that lets children produce short animations or interactive presentations. The canned animations and scenes grow tiresome, however. Jan 95

★★ **Animation Master 2.0.5, Hash Enterprises, 206/750-0042, \$699.** Although this animation software packs extraordinary power at a reasonable price, it's difficult to learn and prone to instability. Oct 94

★★★ **Deck II 2.1, OSC, 415/252-0460, \$399.** AV Macs turn into digital-audio workstations with this software that enables you to record, mix, modify, and play back CD-quality sound. Jun 94

★★★★ **FlipBook 1.0, S. H. Pierce, 617/338-2222, \$89.** Animation printing utility lets users make flip-books out of QuickTime movies, PICS animations, and Scrapbook files. Jun 94

★★★ **HyperCard 2.2, Apple Computer, 408/996-1010, \$249.** Authoring tool strikes a good balance between power and ease of use, and its price is reasonable. It may not satisfy all your wishes, but it should keep you happily building stacks. Sep 94

★★★★ **Macromedia Director 4.0, Macromedia, 415/252-2000, \$1195.** Although this multimedia program remains far from easy to use, this ad-



mirable upgrade increases the program's power and improves its interface. Multimedia professionals will continue to find it the best package available. Sep 94

★★★ **Microsoft PowerPoint 4.0, Microsoft Corp., 206/882-8080, \$399.** If you're in the market for a presentation-graphics program, this is a good choice to use along with Word or Excel, as long as you don't mind the lack of animation functions. For general purposes, though, other alternatives have the edge. Feb 95

★★ **MovieWorks 2.0.2, Interactive Solutions, 415/377-0136, \$295.** With diligence you can get decent results with this all-in-one QuickTime-based multimedia package. But other entry-level programs make leaping into multimedia easier and more rewarding. Sep 94

★★ **mPower 2.0, Multimedia Design Corp., 704/523-9493, \$295.** Despite a handful of sophisticated multimedia features, this authoring tool is too limited to be compelling. While its push-button interface is easy to understand, it's far too cumbersome. Apr 95

★★★ **The Multimedia Workshop 1.0, Davidson & Associates, 310/793-0600, \$79.95.** Children or adults can use this media-integration tool without big investments of either time or money. It's full of compromises, though, such as the inability to layer narration over music. Nov 94

★★★★ **Persuasion 3.0, Adobe Systems, 206/622-5500, \$339.** Users have plenty of new features to cheer about, including improved tool palettes, extensive charting options, and hypertext functions with this presentation graphics program's upgrade. High memory and disk-space requirements are drawbacks. Sep 94

★★★★ **SoundEdit 16, Macromedia, 415/252-2000, \$379.** Digital audio software supports 16-bit sound and has enough goodies to earn it a place in a multimedia producer's toolbox. But its lack of record-level controls limits its usefulness as a professional audio tool. Dec 94

★★ **Special Delivery 2.0, Interactive Media Corp., 415/948-0745, \$399.** Multimedia authoring tool can be confusing and isn't the best choice for complex projects. Still, it may save hours of training for users who merely need to create simple presentations. Apr 95

★★★★ **SuperCard 1.7.1, Allegiant Technologies, 619/587-0500, \$495.** Multimedia authoring system adds a few welcome enhancements and squashes some old bugs. For current users, the upgrade is well worth the price; for others, it's an excellent alternative to more expensive authoring systems. Feb 95

## PROGRAMMING

★★★★ **IDL 3.5, Research Systems, 303/786-9900, \$1500.** In this shockingly powerful, compact, graphics-oriented, interpreted language, a single command is a more manageable task with this simple but powerful file-management utility that lets you copy, move, rename, delete, and find files—without using the Finder. Jul 94

★★ **ScriptWizard 1.0, Full Moon Software, 408/253-7199, \$99.** Software attempts to make writing and debugging AppleScript scripts easier but doesn't offer enough improvement over Apple's Script Editor. Jan 95

★★★ **VIP BASIC 1.0.1 (1.0.3), Mainstay, 805/484-9400, \$295.** Popular programming language lets programmers who know only BASIC get started producing real, if interpreted, Mac programs. Jun 94

★★★★ **VIP-C 1.5 (1.5.1), Mainstay, 805/484-9400, \$495.** For convenience in producing 680X0/Power Macintosh applications, this programming utility is a fine investment. Intermediate to advanced users will get the most benefit, but even beginners will find that it helps turn student projects into serious apps. Feb 95

## UTILITIES

★★ **Apple Personal Diagnostics 1.0 (1.1), Apple Computer, 408/996-1010, \$129.** In trying to make a hardware tool for the rest of us, Apple has come up short. This hardware-diagnostics utility has an uneven manual, some less than thorough tests, and a surprisingly unsatisfying interface. Nov 94

★★★ **AppleSearch 1.0, Apple Computer, 408/996-1010, \$1799.** Although it has some rough edges, this product for archiving and retrieving text is highly useful. It presents retrieved information clearly and extracts text from documents in many formats. May 94

★★★ **Atticus Vista 1.0 (1.0.2), Atticus Software Corp., 203/348-6100, \$69.95.** Control panel and application automatically catalog the disks you mount on the desktop. It has a few problems, including limited search options, but it can help bring order to disorganized disk collections. May 94

★★★★ **Automap Road Atlas for Macintosh 2.01 (2.04), Automap, 206/455-3552, \$99.95.** Mapping software tells you how to get where you're going. Although screen redraw is slow, it's worth it for the written directions and maps. Jul 94

★★★★ **Cal 1.0, Thought I Could, 212/673-9724, \$79.95.** Well-chosen set of desktop necessities includes an excellent calculator, an associated-formula editor, a datebook, and a calendar. Due to its easy access and ample power, this software has become an everyday tool for our reviewer. Jan 95

★★★ **CD AllCache 2.0, CharisMac Engineering, 916/885-4420, \$79.95.** CD-ROM accelerator improves access time by caching a CD's directory and putting its most frequently used data into RAM. Despite this software's limitations, most CD addicts will find the speed improvement worth the trouble. Sep 94

★★★★ **CD-ROM Toolkit 1.0.5 (1.1), FWB, 415/474-8055, \$79.** Software accelerator can halve the time it takes to open files on a CD-ROM. May 94

★★★★ **Conflict Catcher II 2.1.1, Casady & Greene, 408/484-9228, \$79.95.** Customizable, fast, and safe extension-management utility goes well beyond the basics. For Power Macintosh users, it even tells which extensions aren't written in native code and are likely to slow down Power Macs. Oct 94

★★★★ **DiskGuard 1.0.1 and DiskGuard Remote, ASD Software, 909/624-2594, \$129 to \$799.** Rock-solid, flexible disk-protection tools are worth serious consideration if your Mac or Macs are accessible to others. The remote version (in five- and ten-user packs) adds network features, including clock synchronization. Mar 95

★★★★ **DiskTop 4.5 (4.5.1), PrairieSoft, 515/225-3720, \$99.95.** Organizing a crammed hard drive is a more manageable task with this simple but powerful file-management utility that lets you copy, move, rename, delete, and find files—without using the Finder. Jul 94

★★★★ **Drive7 3.0, Casa Blanca Works, 415/461-2227, \$79.95.** Highly recommended hard drive-formatting utility easily formats and partitions most drives and provides all the options you need. And within its limitations, its Mount Cache utility provides a real performance boost. Nov 94

★★★ **eDisk 2.0, Alysia Software Corp., 415/928-2895, \$149.95.** Driver-level software compresses data read to your drive on the fly and automatically expands data read from your drive. It offers transparent compression. Dec 94

★★★★ **Icon Mania 1.0 (1.01), Dubl-Click Software, 503/317-0355, \$69.95.** Delightful icon-

editing utility comes with terrific tools for building new icons, including an outstanding thumbnail feature that builds custom icons from graphics files. Aug 94

★★★★ **Kaboom 3.0, Nova Development Corp., 818/591-9600, \$49.95.** Sound-effects utility with sound-editing application is a fun program for anyone who wants to play with sound. Feb 95

★★★★ **Launch Pad 1.0, Berkeley Systems, 510/540-5535, \$49.99.** If you want to share your Mac with your kids, this desktop utility is a worthwhile investment. It can even speak menu items and file names out loud for kids too young to read. Jan 95

★★★★ **Maxima 3.0, Connectix, 415/571-5100, \$99.** If you have more than 8MB of RAM, you can use some of it as a RAM disk, speeding up disk-based operations, with this inexpensive utility. Nov 94

★★★★ **MultiClip Pro 3.1, Olduvai Corp., 305/670-1112, \$59.** Easy-to-use utility is exactly what Apple's Clipboard and Scrapbook should have been; a convenient repository of data that moves between documents without fuss or muss. Apr 95

★★★★ **Norton DiskDoublerPro 1.1, Symantec Corp., 503/334-6054, \$109.** Utility collection includes DiskDoubler, AutoDoubler, and CopyDoubler. Because of its ease of use, the product is a good choice for beginners. Feb 95

★★★ **Norton Utilities for Macintosh 3.1, Symantec Corp., 503/334-6054, \$149.95.** Data-protection and -recovery utility collection is leaner, meaner, and faster than ever before, but it's also surprisingly uneven. While Disk Doctor leads the pack for disk-repair utilities, the back-up module is weak and the new UnErase module is missing some features. Feb 95

★★★★ **Now Utilities 5.0, Now Software, 503/274-2800, \$89.** Three of the modules of this fine-tuned, interlocking utility set—Now FolderMenus, Now Menus, and Now SuperBoomerang—are almost indispensable, and while the other six may not be tops in their category, they're well worth considering. As a collection, this package remains the best in the business, and it's Power Mac native. Jan 95

★★★ **Open Sesame 1.02 (1.1), Charles River Analytics, 617/491-3474, \$99.** Utility automates Finder operations, such as opening, without macros or scripts. It has an elegant interface, but people with strict work habits are more likely to find its suggestions worthwhile than are those who don't follow a routine. May 94

★★★ **PaperPower 1.0, Pipetel, 513/294-6656, \$149.** Graphics-tablet utility provides a useful tool for creating and using macros, but the overlays it creates can be tricky to use. Apr 95

★★★ **Peirce Print Tools 1.0, Peirce Software, 408/244-6554, \$129.** Nine handy printing utilities work with QuickDraw GX. Most of the modules are useful, but not all are must-haves. Jan 95

★★★ **PopupFolder 1.0 (1.5), Inline Software, 617/935-1515, \$59.95.** Finder utility is so handy and easy to use, you wonder why it isn't built into the Mac's system software. On the other hand, it's sluggish when readying pop-up menus for every folder. Aug 94

★★★★ **PowerAgent 1.1, SouthBeach Software Corp., 305/858-8416, \$159.** You can revolutionize your Macintosh work with this agent program that manages scripts. It provides excellent support for File-Maker Pro. Nov 94

★★★★ **PowerMerge 2.0, Leader Technologies, 714/757-1787, \$129.** Powerful file-management tool helps you keep individual files, folders, or entire volumes organized and up-to-date. This version lets you



# Star Ratings

compare and launch documents, rename files, trash superfluous files, and lots more. Aug 94

★★★★ **ProFiles 1.0, Dayna Communications, 801/269-7200, \$129.** Unusual new utility lets you group related files and folders for quick access and actions such as making aliases, copying, and more. Aug 94

★★★★ **RAM Doubler 1.0.1 (1.5), Connectix Corp., 415/571-5100, \$99.** Inexpensive system extension doubles available RAM for many Mac users. There are a number of requirements, however, including System 7, 4MB of physical RAM, and a 68030 board. May 94

★★★★ **RescueText 1.0, Abbott Systems, 914/747-3116, \$79.** If you want decent performance and the ability to locate text in even a deleted file, this text-retrieval utility is a good choice. It doesn't tell you what file the text comes from, however, so you cannot simply open the found file. Apr 95

★★ **SCSI Director Pro 3.0.6, Transoft Corp., 805/565-5200, \$99.** Utility provides simple, one-button hard disk formatting. Technical support costs \$1.90 per minute. Sep 94

★★★★ **Square One 2.0, Binary Software, 310/449-1481, \$74.** The slick design, flexibility, and straightforward interface of this file-launching utility make it a pleasure to use. Dec 94

★★★★ **Stop & Go 4.0, Engram International, 415/455-1100, \$69.99.** File-protection/relaunch utility uses a portion of your hard disk to save a snapshot of the data in your Mac's RAM. It's fast but unduly complicated. Oct 94

★★★★ **UnderWare 1.0.1, Bit Jugglers, 415/968-3908, \$59.95.** Inspired, silly fun for your Mac's desktop comes from a control panel that adds three features: a screen saver, desktop patterns, and animations that run on your desktop while you work. The price for this whimsy is mostly in disk space. Jun 94

★★★★ **VirtualDisk 1.1a (2.0), Continuum Software, 206/695-8136, \$79.** Rapid disk cataloging; fast, efficient label-printing; and an excellent disk-copy utility make this software a wonderful value. Jul 94

★★★★ **Wiz Tools for PowerBook 1.2.2, ASD Software, 909/624-2594, \$79.95.** The connectivity, file-synchronizing, and security features of this collection of PowerBook utilities are appealing, but the rest of the modules are also rans. Jan 95

## VERTICAL MARKETS

★★★★ **Autoscore 1.0, Wildcat Canyon Software, 510/527-5155, \$150.** Converting the human voice into MIDI note information is a challenging task. If you have the right music software, mule, and voice, this music-recognition software can actually pull it off. Feb 95

★★★★ **Bird Brain 2.01, Ideaform, 515/472-7256, \$125.** Database lets bird watchers record every sighting of every bird they have ever seen to create electronic life lists. Although it can be slow, it includes species names and other information. Jan 95

★★★★ **Claire, The Personal Music Coach 1.0.1, Opcode Systems, 415/856-3333, \$129.95.** Musicianship program teaches pitch and interval recognition, sight singing, and intonation. The interface is nonstandard, but it's logical and easy to learn. May 94

★★★★ **DigiTrax 1.1, Alaska Software, 408/738-3320, \$349.** If you're an amateur musician or a multimedia producer with modest sound-recording needs and you have a Quadra AV, consider this audio-recording software. What it lacks in features, it makes up for in simplicity and a relatively

low price tag. Mar 95

★★★★ **ErgoKnowledge 1.0, Visionary Software, 503/246-6200, \$395.** Despite a few shortcomings, this CD-ROM offers a good, basic review of office-computer ergonomics. Dec 94

★★★★ **MayaCalc 2.3.1, Ecological Linguistics, 202/546-5862, \$120.** 4th Dimension database alleviates much of the pain involved in working with the complex, multilayered Maya calendar. Although the design could be improved, it's a highly useful tool for both serious and casual Maya enthusiasts. Feb 95

★★★★ **Maya Hieroglyphic Fonts, Ecological Linguistics, 202/546-5862, \$10 to \$60 per set.** Although these fonts based on Mesoamerican hieroglyphic scripts are beautifully rendered, the character spacing is sometimes uneven. Feb 95

★★★★ **Mayo Clinic Family Health Book 1.2, IVI Publishing, 612/686-0779, \$69.95.** Medical CD-ROM for home use deals with the full gamut of health-care topics, from AIDS to zygotes, although it doesn't include any reference to alternative therapies. Sep 94

★★★★ **Mayo Clinic: The Total Heart 1.0, IVI Publishing, 612/686-0779, \$59.95.** Cardiovascular health and related subjects are the topics of this medical CD-ROM for home use. Although it makes liberal use of drawings, photographs, and animations, video sequences would have been more effective. Sep 94

★★★★ **Medical HouseCall 1.0, Applied Medical Informatics, 801/464-6200, \$99.95.** Interactive medical guide is a painless way for people to learn about diseases, tests, and therapies. Although it's easy to use and interesting, some images were incorrectly labeled. Feb 95

★★★★ **MusicTime 2.0, Passport Designs, 415/726-0280, \$149 to \$249.** Music-notation program is geared for hobbyists and students. If your needs aren't complex, it may fit the bill, at a great price. Oct 94

★★★★ **Overture 1.02, Opcode Systems, 415/856-3333, \$495.** Easy-to-learn, midrange notation software has a friendly interface and shows real polish. If you don't need all the features of a high-end product, it's a serious contender. Apr 95

★★★★ **Performer 5.02, Mark of the Unicorn, 617/576-2760, \$495.** A colorful, redesigned interface and improved sheet-music view are part of this MIDI recording program's worthwhile overhaul. If you like the sheet-music view, this is the product to buy. Mar 95

★★★★ **Practica Musica 3.0, Ars Nova Software, 206/889-0927, \$140.** Music-teaching program, with emphasis on sight-reading and ear-training techniques, shines as a smart, infinitely patient personal music coach in the classroom. Jan 95

★★★★ **SAM-CD, Scientific American Medicine, 212/754-0550, \$395.** Despite a few shortcomings, such as the poor interface for case simulations, this medical reference work should prove a worthwhile addition to any medical library. Sep 94

★★★★ **Vision 2.08, Opcode Systems, 415/856-3333, \$495.** MIDI program's list of exclusive, creativity-slanted features, such as endless count off and scrubbing (which lets you hear the music as you drag across it), give the program a usability edge. Mar 95

★★★★ **WillMaker 5.0, Nolo Press, 510/549-1976, \$69.95.** Legal software quickly and easily automates the creation of wills, health-care directives and proxies, and final-arrangements documents. Jun 94

## WRITING TOOLS

★★★★ **Bookends Pro 3.1, Westing Software,**

**415/435-9343, \$129.** Comprehensive database program catalogs and stores all of your reference material—actual quotes as well as citations. It's a useful tool that researchers will appreciate. Mar 95

★★★★ **EndNote Plus 2.0, Niles & Associates, 510/649-8176, \$299.** Despite its power, this indispensable bibliography and citation manager is surprisingly easy to learn and use. If you have to work with references, it's a good choice. Apr 95

★★★★ **FullWrite 2.01, Akimbo Systems, 617/776-5500, \$395.** As the leanest of all high-end word processors, this product requires only 2MB of RAM. Although its modular architecture is complex, it's worth considering if you don't need to share files with the Word/WordPerfect crew. Apr 95

★★★★ **Grammatik 6 for Macintosh, WordPerfect Corp., 801/225-5000, \$49.95.** The low price, pleasant interface, and improved accuracy of this grammar checker make it worthwhile for a large number of quality-driven writers. It still misses some errors. Feb 95

★★★★ **Inspiration 4.1, Inspiration Software, 503/245-9011, \$195.** Writing tool allows you to move between words and diagrams to show the relationships between ideas. This version adds improved keyboard controls, import and export capability, plus more. Apr 95

★★★★ **MacWrite Pro 1.5 (1.5 v2), Claris Corp., 408/727-8227, \$249.** The clean, uncluttered interface of this low- to middle-level word processor is still one of its major assets. This upgrade adds support for QuickTime, PowerTalk, AppleScript, and more. May 94

★★★★ **Microsoft Word 6.0, Microsoft Corp., 206/882-8080, \$329.** If you can put this word processor's new features—including cross-referencing, AutoText, automatic numbering, macros and more—to work and you have a Quadra 650 or faster Mac, take the plunge. If you have a slower 68040 Mac, think twice; and if you have a 68030 Mac, don't even think about it. Feb 95

★★★★ **Nisus Writer 4.0, Nisus Software, 619/481-1477, \$495.** In a few specialized areas—such as mixing English and non-Romance languages, this word processing program is unmatched. However, for some high-end uses, such as table creation, it's a poor choice. Apr 95

★★★★ **OmniPage Professional 5.0, Caere Corp., 408/395-7000, \$695.** In a historic first for OCR, this Power Mac software has an accuracy of 100 percent on good text samples. It does still make occasional baffling minor errors on real-world documents. Nov 94

★★★★ **Random House Unabridged Dictionary, Random House Electronic Publishing, 212/572-2600, \$179.** Comprehensive dictionary on CD-ROM works within any program and is good at guessing misspelled words. Although some functions don't work reliably, the quality and design of the software are better than those of other dictionaries on CD-ROM. May 94

★★ **Read-it O.C.R. Pro 5.0, Olduvai Corp., 305/670-1112, \$395.** Although this OCR software has a nice collection of features, its recognition engine isn't up to par. It's not a first choice unless you simply need to process piles of very clear Courier text. Apr 95

★★★★ **TextBridge 2.0, Xerox Imaging Systems, 508/977-2000, \$99.** Optical character recognition software is impressive on good documents and can be trained and automated. You won't find that anywhere else at this price. Sep 94

★★★★ **WriteNow 4.0.1, WordStar International, 617/494-1200, \$119.95.** Tidy word processor's conservative use of memory (the application fits into a dainty 600K partition) and graceful interface will continue



tinue to win it fans. Jun 94

★★★ **Writing Coach 1.0, WritePlace Software, 503/484-6380, \$89.** If you'd like help with your writing, this writing-skills tutorial could be a great investment. Skillfully worded worksheets assist with planning, organizing, and revising. Dec 94

## Hardware

### INPUT DEVICES

★★★★ **ArtPad, Wacom Technology, 206/750-8882, \$199.** Measuring less than 7 by 7½ inches, this pressure-sensitive tablet is sheer convenience if you're looking for a device that you can hide away one moment and readily exhume the next. Apr 95

★★★★ **DrawingSlate, CalComp Digitizer Division, 714/821-2000, \$395.** Digitizing tablet is a good, compact, low-cost implementation of pressure sensitivity, although the battery-operated stylus is a bit heavy. Jun 94

★★★★ **Ear Phone Streamline AV, Jabra Corp., 619/622-0764, \$169.** As a hands-free telephony tool—and as a replacement for the Apple PlainTalk microphone—this telephone/speech-recognition earpiece is a winner. Jul 94

★★★★ **FlightStick Pro for Macintosh, CH Products, 619/598-2518, \$129.95.** The authentic look and feel of this joystick, along with well-conceived software, make it a nearly perfect desktop pilot's companion. Dec 94

★★★★ **Mac Keyboard Deluxe, MicroSpeed, 510/490-1403, \$125.** If you're in the market for a new or replacement keyboard, this one, which is both smaller and lighter than Apple's Extended Keyboard, is worth considering. It has four ADB ports. Nov 94

★★★★ **Mouse Deluxe Mac, MicroSpeed, 510/490-1403, \$69.** The extra buttons of this mouse offer several features that Apple's mouse doesn't match, but its shape may not suit everyone's taste. Mar 95

★★★★ **Remote Point, InterLink Electronics, 805/484-1331, \$199.** Although it may not be a first choice for desktop work, this infrared pointing device is an elegant workaround for users who don't want to (or can't) be tethered to their Macs. Apr 95

★★★★ **Wacom UD-1212R, Wacom Technology Corp., 206/750-8882, \$749.** Graphics tablet with pressure-sensitive stylus is easy to use and highly customizable, though it's incompatible with AppleTalk and AppleTalk Remote. May 94

### MISCELLANEOUS HARDWARE

★★★★ **AirNote 1.0, Notable Technologies, 510/208-4400, \$349.** Remote-messaging service lets you originate alphanumeric paging messages from your own computer, eliminating both dictation charges and errors in translation. It's a very handy way to get into alphanumeric paging. Dec 94

★★★★ **Apple PCMCIA Expansion Module, Apple Computer, 408/996-1010, \$219.** Well-integrated, well-designed unit offers 500-series users an efficient and easy albeit expensive way to add features to their PowerBooks. If you can overlook the early-adopter prices (a big if), the PC Cards are great expansion options—lightweight, low-power, and high-performance. Mar 95

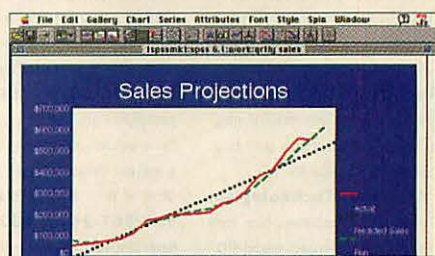
★ **EAB401P Speakers, Panasonic Communications & Systems, 800/742-8086, \$99.** Small, continues

# SPSS 6.1 for the Macintosh® Real Stats. Real Easy.

All New  
Macintosh  
interface!

Get answers to tough questions using in-depth statistics!

Use 60+ statistics from basics such as counts and crosstabs to more sophisticated statistics including factor, regression and logistic regression.



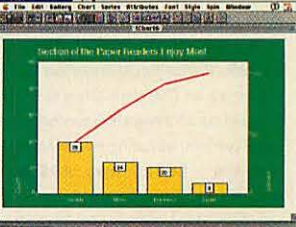
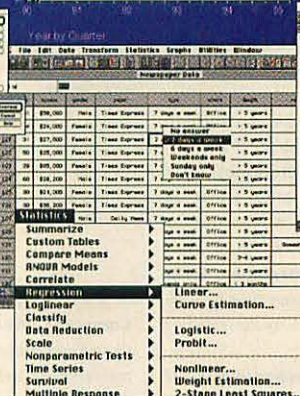
Get fast, flexible data management!

The spreadsheet-style Data Editor makes entering, editing and managing your data fast and easy using either values or value labels. And, you can work with even your largest data files!



Work faster with an all new Macintosh interface!

Learn faster using an online tutorial and speed up analysis with task-oriented help, a statistical glossary and a new toolbar. Plus, you get fast access to all statistics through menus and dialog boxes without typing commands!



See your results quickly and clearly!

Choose from 50+ high-resolution business, statistical and SOC charts. All can be fully edited with easy point-and-click tools.

Use SPSS 6.1 for the Macintosh when you need in-depth answers quickly and easily. Go beyond summary statistics and spreadsheet row-and-column math by using the right tool for the job. SPSS enables you to answer tough questions like:

- How satisfied are my customers?
- What will my sales be next quarter?
- What are the patterns in my data?

#### Survey research

- Explore consumer awareness
- Compare perceptions of products
- Discover preferences by group

#### Marketing and sales analysis

- Analyze your customer database
- Forecast sales by product and region
- Improve mailing responses



Call 1(800)457-8287

#### Quality improvement

- Assess process capability
- Reduce nonconformance
- Spot unnatural patterns of variation

#### Research of all types

- Test hypotheses
- Determine group differences
- Track performance over time

Get a great value — order now!

Call 1(800) 457-8287

or Fax 1 (800) 841-0064  
or mail to: SPSS Inc., 444 N. Michigan Ave.  
Chicago, IL 60611  
American Express, Discover, MasterCard,  
VISA and I.M.P.A.C. cards accepted

Name \_\_\_\_\_  
Title \_\_\_\_\_  
Organization \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_  
ZIP \_\_\_\_\_ Email \_\_\_\_\_  
Phone ( ) \_\_\_\_\_ Fax ( ) \_\_\_\_\_

Try SPSS 6.1 for the Macintosh with our unconditional, 60-day money-back guarantee.

**SPSS**  
Real Stats. Real Easy.™

Chicago • Washington, D.C. • Bologna • Chertsey • Goringham • Madrid • Munich • New Delhi • Paris • Singapore • Stockholm • Sydney • Tokyo • And distributors worldwide

Circle 85 on reader service card

## Put Our List On Your List

Our list is the *Consumer Information Catalog*. It's free and lists more than 200 helpful government booklets. So send for the free *Catalog*. It's the thing to do. Write:



**Consumer Information Center, Dept. LL, Pueblo, CO 81009**

A public service of this publication and the Consumer Information Center of the U.S. General Services Administration



# Star Ratings

inexpensive speakers provide less-than-state-of-the-art performance. The audio is thin and reedy. **Apr 95**

★★ **EAB701P Speakers, Panasonic Communications & Systems, 800/742-8086, \$249.** The sound of these speakers is thin and slightly harsh, although they are attractive in a high-tech sort of way. **Apr 95**

★★★★ **IX-4015 Color Image Scanner, Canon Computer Systems, 714/438-3000, \$1169.** The price of this color flatbed scanner is competitive, and its speed and excellent bundled software make it easy to use and a good choice for the small office. **Jul 94**

★★★★ **MMS557, Audio-Technica USA, 216/686-2600, \$149.95.** Among a huge selection of similarly priced speaker systems, these stand out as a best buy. They look good, as well as sound good. **Apr 95**

★★★★ **MultiSpin 4Xe, NEC Technologies, 708/860-9500, \$515.** With its competitive price, free tech support, and two-year warranty, this quad-speed CD-ROM player is ready to race. **Feb 95**

★★★★ **Photo Engine, Radius, 408/541-6100, \$1099.** Photoshop acceleration hardware's suite of four 66MHz 32-bit DSP chips offers sufficient processing power to speed up 25 Photoshop functions on the most sophisticated systems, including Power Macs. **Feb 95**

★★★★ **SCSI Sentry, APS Technologies, 816/483-6100, \$99.** Although the price of this terminator may seem steep, this device may well be the cure for SCSI woes. Our reviewer heartily recommends it. **Sep 94**

★★★★ **TurboDialer, Micromachines, 818/901-1700, \$69.95.** Automatic telephone dialer is a well-executed product, except for occasional computer noise that seeps into phone conversations. **Jul 94**

★★★★ **Vivace, Coda Music Technology, 612/937-9611, \$2295.** As an intelligent and endlessly patient accompanist, this music study system for wind instruments may be the best thing that's happened to learning wind literature since the metronome. **Jan 95**

## MODEMS/NETWORK HARDWARE

★★ **Cooperative Adapter, Photonics Corp., 408/955-7930, \$349.** The high cost of each unit, the limitations and restrictions inherent in diffuse infrared, and the extremely low cost of traditional LocalTalk adapters and cabling make this infrared network interface an expensive niche product. **Dec 94**

★★★★ **Cypress PhonePro 1.2 (1.5), Cypress Research Corp., 408/752-2700, \$349 to \$950.** By improving its integration with FaxPro and with PowerTalk and PowerShare, this powerful telephony software has greatly extended its business scope. **May 94**

★★★ **DaynaPort Pocket SCSI/Link, Dayna Communications, 801/269-7200, \$299 to \$369.** Inexpensive, lightweight SCSI-to-Ethernet connector works with both desktop Macs and PowerBooks and can use the Mac's ADB port as a power source. **Nov 94**

★★★★★ **EtherWave, Farallon Computing, 510/814-5000, \$129.** Instead of providing only one 10BaseT twisted-pair jack, this Ethernet transceiver includes a second jack that allows you to daisy-chain to another device through an additional 10BaseT line. **May 94**

★★★★ **FastSwitch 10, Grand Junction Networks, 510/252-0726, \$6250.** Switched Ethernet hub is a great solution for networks that handle large amounts of data traded peer-to-peer, but if your network consists of E-mail and a file server, you probably won't see much benefit in stepping up to switched Ethernet. **Dec 94**

★★★★ **OneWorld Fax, Global Village Communication, 415/390-8200, \$999.** Easy-to-use network

fax product lets an office share fax-sending resources without dedicating a hard drive and CPU. **Aug 94**

★★★★ **Pocket EtherTalk Adapter, Xircom, 818/878-7600, \$349 to \$399.** All-in-one SCSI-to-Ethernet connector is lightweight and works with desktop Macs and PowerBooks. **Nov 94**

★★★★ **PowerPort Mercury/PB 500 Series, Global Village Communication, 415/390-8200, \$399.** Top-notch fax modem is capable of exemplary fax and data communications performance. **Nov 94**

★★★★ **Spectra-Com P192mx, Bay Connection, 408/270-8070, \$199.95.** If you must have absolute portability and AC power isn't available, this pocket data/fax modem can do the job. It's not that much smaller than a regular desktop modem, however. **Oct 94**

★★★★ **SupraFaxModem 288, Supra Corp., 503/967-2410, \$329.95.** This 28,800-bps fax modem is a very good performer, and the price of admission isn't steep. Combined with fast, stable fax software and a good terminal program, it's hard to beat. **Aug 94**

★★★★ **Watermark Message Central 2.0.2, High Tide Software, 510/704-9927, \$499.** If you're willing to put in a lot of effort, you'll find this highly sophisticated voice-mail system supremely flexible. It includes a specially modified modem with voice chip, as well as fax software and telecommunications software. **Jul 94**

## PRINTERS

★★★★ **Apple Color StyleWriter 2400, Apple Computer, 408/996-1010, \$525.** Economical, Quick-Draw-based color ink-jet printer offers gorgeous color output plus fast black-and-white printing. If you don't need DOS/Windows compatibility, it's a good buy. **Apr 95**

★★ **Brother HJ-400, Brother International, 908/356-8880, \$369.** Compact, 360-dpi ink-jet printer is fairly slow and does not allow background printing. **May 94**

★★★★ **HP LaserJet 4ML, Hewlett-Packard, 800/752-0900, \$1279.** Primarily for those who work in a small, mixed-platform environment, this energy-efficient laser printer offers automatic port and language switching, and is a good buy. **May 94**

★★★★ **LaserWriter 16/600 PS, Apple Computer, 408/996-1010, \$2399.** If speed is what you need, this fine printer is it. The price is reasonable. **Mar 95**

★★ **Notebook Printer II, Citizen America, 310/453-0614, \$399.** If weight and size are your biggest concerns in choosing a portable printer, this thermal-fusion printer may be a good choice. If speed is at all an issue, however, other options may be preferable. **Jun 94**

★★★★ **Personal LaserWriter 320, Apple Computer, 408/996-1010, \$959.** The small inconveniences of this 300-dpi printer are easily outweighed by its low price, good speed, and PostScript Level 2 support. **May 94**

★★★★ **Phaser 140, Tektronix, 503/627-7111, \$1695.** If you're looking for a capable color printer for a small workgroup, this ink-jet is a great choice. It provides only 17 resident fonts, however. **Apr 95**

★★★★ **PowerPrint 2.5, GDT Softworks, 604/291-9121, \$149.** Ingenious hardware-software combo lets you print from your Mac to almost any PC printer. It supports over 1000 printers, ranging from aging dot matrix models to the newer color ink-jet and laser printers. **Sep 94**

★★★★ **PrimeraPro, Fargo Electronics, 612/941-9470, \$1895.** The photo-realistic output of this thermal-wax and dye-sublimation printer beats that of any other printer in the price range. But with expensive

consumables and slow print time, it's best suited for routine thermal-wax use and occasional dye-sub work. **Jan 95**

★★★★ **P-Touch PC, Brother International Corp., 908/356-8880, ext. 4307, \$449.95.** Versatile label printer is easy to set up and use, and produces high-quality output. The cost per label is high, though, and the documentation is weak. **Sep 94**

★★ **QMS ColorScript Laser 1000, QMS, 205/633-4300, \$7999.** Color laser printer succeeds in combining the versatility of monochrome laser printing with attention-getting color, but if you don't need to chase rainbows right away, you might wait and see if competition drives capabilities up. **Jul 94**

★★★★ **Silentwriter 640, NEC Technologies, 508/264-8000, \$825.** With 3MB of RAM, PostScript Level 2 support, and a 6-ppm engine, this printer is a capable performer. **Jun 94**

★★★★ **Smart Label Printer Pro, Seiko Instruments, 408/922-5900, \$299.95.** If you need to print only a few labels at a time, this label printer may be an expensive but good choice. It prints very quickly, and with excellent print quality. **May 94**

## SYSTEMS/STORAGE

★★★★ **Alacritty PM 6100, KS Labs, 614/374-5665, \$165.** Installing a clock booster is the quickest, easiest, and cheapest way to extract more power from Apple's entry-level Power Mac. **Oct 94**

★★★★ **Brainstorm Accelerator for the Macintosh SE, Brainstorm Products, 415/988-2900, \$199.** Your SE will never be a Power Mac or even a IISI, but if your budget won't buy a new Mac, you can't do better than this accelerator, which pushes an SE's speed to close to a Classic II's in overall performance. **Mar 95**

★★★ **Conley SR2 RAID System, Conley Corp., 212/682-0162, \$25,335.** While RAID technology is typically praised for its fault-tolerance rather than its speed, this high-performance storage system proves that you can have both. **Sep 94**

★★★★ **EtherDock, E-Machines, 408/541-6100, \$699.** Heavy-duty Duo docking option is equipped with a full set of 11 ports, including an Ethernet port. **May 94**

★★★★ **Joule System, La Cie, 503/520-9000, Price varies by component.** Plug-and-play tower lets you stack drives—including hard drives, removable media, and other modules—atop a base unit, making it easy to buy extra storage or swap modules with other Joule towers. Joule drive prices are generally slightly higher than for comparable drives, however. **Feb 95**

★★★★ **LC 575, Apple Computer, 408/996-1010, \$1699.** For students and small-business professionals who want high power and the convenience of having everything integrated into one case, this 33MHz 68040 system is an ideal choice. **Jun 94**

★★★★ **Newton MessagePad 110, Apple Computer, 408/996-1010, \$599.** This is the personal digital assistant that Apple should have shipped in August 1993, with improved handwriting recognition, including deferred and letter-by-letter recognition. It also has more memory, longer battery life, and a more efficient design. **Aug 94**

★★★★ **OrangePC Model 200 Series, Orange Micro, 714/779-2772, \$1139 to \$3237.** If your goal is to get a Mac that runs Windows as fast as a PC, you can't get there from here. If your goal is to get business-level performance for day-in, day-out use, these PC coprocessor cards are your best choice. **Aug 94**

★★★★ **PLI Infinity 270 Turbo, PLI, 510/657-continues**



# "Hallelujah!"

"QuickBooks is simple to understand and use."  
Cynthia Krol

# "Love it!"

"Reports can be laid out in any conceivable way." Susan Yeagley Sullivan

# "Easy!"

"I haven't used the manual since I installed it."  
Timothy J. McManus

# "Super-quick!"

"A butt-kicking program!"  
Robert D. Pinson

About time! Amen!"

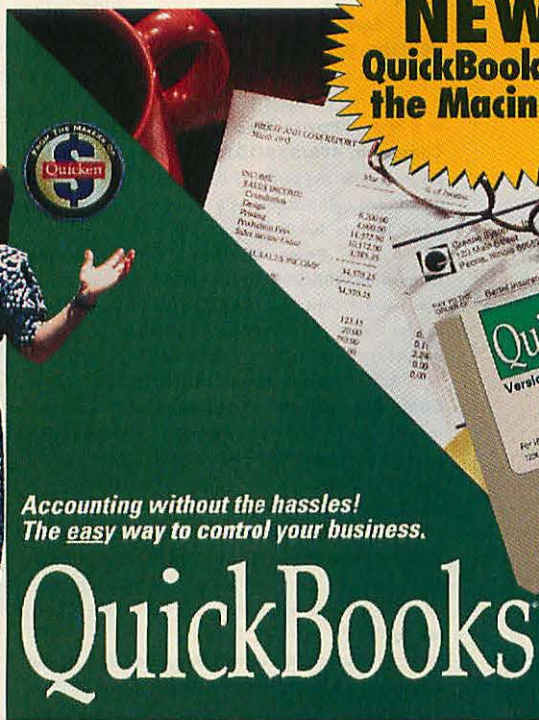
**NEW!**  
QuickBooks for  
the Macintosh



Susan Yeagley Sullivan  
San Diego, CA

Cynthia Krol  
Westlake  
Village, CA

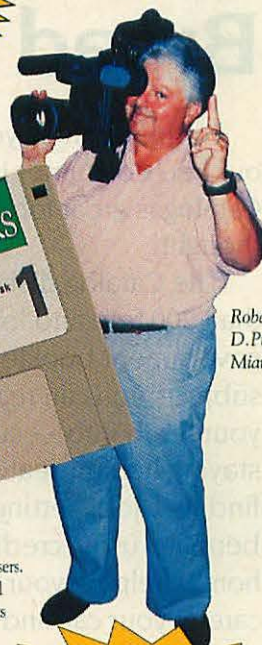
Timothy J.  
McManus  
Minneapolis, MN



Accounting without the hassles!  
The easy way to control your business.

# QuickBooks

These people  
are all real  
QuickBooks users.  
(Thanks for all  
your comments  
and photos!)



Robert  
D. Pinson  
Miami, FL

**Includes  
Payroll!**

**Why is QuickBooks #1? Word of mouth.**  
It's the #1 selling bookkeeping software for small business people from the makers of Quicken. It's the #1 recommendation from retailers. And most importantly, it's #1 with users.

Because QuickBooks is so easy, you don't even need to know a debit from a credit. If you know how to write checks and invoices, you know how to use QuickBooks. Just fill in the familiar forms on the screen and it does all your bookkeeping for you. Invoicing and accounts receivable. Check writing and accounts payable. Plus all the financial reports you need to manage more profitably.

And it's fast. For instance, it finishes any repeat entry for you as soon as you start typing. It even includes complete payroll.

It's easy to tailor QuickBooks to your business. Simply choose from a list of business types and then customize the settings and reports as much as you want.

**Finally! QuickBooks for the Macintosh.**  
The Macintosh version has all of the QuickBooks features you've been waiting for. So you can get your business up and running on the most hassle-free accounting software ever, in no time at all.

Now we'll look forward to hearing the word from you.

## Try QuickBooks for only \$8.00!

Pay only shipping and handling  
now to try QuickBooks.  
If you decide to keep using it after  
30 days, pay just \$119.

### 1-800-781-6999

Ext. 700 538

24 hours a day, 7 days a week.

Credit card orders only. Please have your card ready.  
International shipping extra. Offer expires 5/31/95.

© 1995 Intuit Inc. Quicken and QuickBooks are registered trademarks of Intuit Inc. DOS and WIN versions also available. Feature sets vary.





# The Greatest Thing Since Sliced Bread

No matter how you slice it, our free Consumer Information Catalog is great food for thought.

The Catalog dishes up more than 200 free and low-cost government booklets on subjects you can really sink your teeth into — such as staying healthy, eating right, finding a job, getting federal benefits, using credit, buying a home, helping your kids, taking care of your car, and much, much more.

To get your free copy, send your name and address to:  
**Consumer Information Center  
 Department GT  
 Pueblo, Colorado 81009**



A public service of this publication and the Consumer Information Center of the U.S. General Services Administration

## Star Ratings

**2211, \$651.** This 270MB SyQuest drive is fast, reliable, and a very good product. The cost of the medium is competitive with that of optical drives. **Sep 94**

★★ **PowerBook 150, Apple Computer, 408/996-1010, \$1449.** Fast, lightweight portable is minimalist in the extreme, with no video-out, ADB, Ethernet, or microphone. Unfortunately, the price is less minimalist, and most budget-conscious shoppers would be better off buying a used or discontinued model. **Dec 94**

★★★ **PowerBook 540c, Apple Computer, 408/996-1010, \$4839.** The prestige PowerBook du jour, this sleek, curvy and futuristic-looking notebook makes a good computer for both on-the-road and in-the-office use. Its nonstandard battery, memory, and Ethernet ports are not ideal features, however. **Oct 94**

★★★★ **PowerBook Duo 280c, Apple Computer, 408/996-1010, \$3759.** If you travel a lot, this notebook computer is hands down the best Mac to get. It offers close to the power of a Quadra 650 in a subnotebook. **Oct 94**

★★★ **PowerBook Duo Dock II, Apple Computer, 408/996-1010, \$969.** Apple has added Ethernet to this full-featured docking station, but installing NuBus cards is still absurdly difficult. **Oct 94**

★★★★ **Power Macintosh 6100/60, Apple Computer, 408/996-1010, base model \$1819.** Given its price and performance, this Power Macintosh is hard to resist. This should be a system that will give you power to spare. **Jun 94**

★★★★★ **Power Macintosh 7100/66, Apple Computer, 408/996-1010, \$2899.** Midrange Power Mac makes an outstanding workstation whose power should last for several years. The price is nothing to take lightly, but this system delivers every dollar's worth. **Aug 94**

★★★★★ **Power Macintosh 8100/80, Apple Computer, 408/996-1010, \$4249.** While this system doesn't quite offer the excellent price/performance ratio of the other available Power Macs, you should consider it if you're a high-end user moving your work over to RISC-based computing. **Aug 94**

★★★★ **Power Macintosh 8100/110, Apple Computer, 408/996-1010, \$6379.** High-end users who have invested heavily in NuBus cards can protect their investment with this top-of-the-line Power Mac. **Mar 95**

★★★★ **Power Macintosh Upgrade Card, Apple Computer, 408/996-1010, \$699.** Current 33MHz 040 machines will get the best bang for the buck with this card, which is a less expensive upgrade path than a standard motherboard replacement. However, other Macs won't realize as much of a performance gain. **Oct 94**

★★★★★ **Quadra 630, Apple Computer, 408/996-1010, \$1279.** Fast, inexpensive, expandable 33MHz 68040 machine may be the last 680X0-based desktop Macintosh, but it's one of the best entry-level Macs ever. **Nov 94**

★★★★ **SCSI MicroDock, Newer Technology, 316/685-4904, \$175.** Tiny Duo docking station is just under 4½ ounces and barely 5 inches long. It adds only an ADB port and a SCSI port—but both are useful. **May 94**

### VIDEO/DISPLAY

★★★★ **Apple Macintosh Display Card 24AC, Apple Computer, 408/996-1010, \$1579.** 24-bit accelerated graphics card offers a satisfactory price/performance ratio, although it can't switch resolutions from the keyboard. **Oct 94**

★★★★★ **Apple Multiple Scan 15 Display,**

**Apple Computer, 408/996-1010, \$509.** The tridort tube of this 15-inch monitor provides a sharp and accurate image, but reflects some glare. The built-in stereo speakers reproduce sound nicely. **Feb 95**

★★★★ **Apple QuickTake 100 for Macintosh, Apple Computer, 408/996-1010, \$749.** For a medium-quality, digital color camera, this is the best deal around. But you may want to wait until some of the camera's problems, such as its fixed-focus lens, are ironed out. **Jul 94**

★★★★★ **FlexCam, VideoLabs, 612/988-0055, \$595.** Small, unobtrusive desktop video camera has a flexible gooseneck for positioning. **Dec 94**

★★★★ **L-TV Portable, Focus Enhancements, 617/938-8088, \$299.** Sturdy, inexpensive, external TV-converter plugs into your Mac and converts video output to NTSC. **Aug 94**

★★★★ **L-TV Pro NuBus, Focus Enhancements, 617/938-8088, \$399.99.** NuBus card converts your Mac's RGB video signal to NTSC so you can use your Mac with a TV or VCR. It supports a wide range of Macs, but the image has some flicker and distortion. **Aug 94**

★★★★★ **Multiscan 15sf, Sony Computer Peripheral Products, 408/432-1090, \$569.95.** Trinitron monitor has a flat screen that displays sharp, bright, and accurate images. With good antiglare coating and adjustable image tilt, it's worth looking at. **Feb 95**

★★★★★ **MultiSync 3V Monitor, NEC Technologies, 708/860-9500, \$495.** With a bright display and great image quality, this monitor delivers a fine picture at a moderate price. **Feb 95**

★★★★★ **Panelight ZX, Panelight Display Systems, 415/772-5800, \$3995 to \$4695.** LCD panel offers vivid images at a comparatively low price. It's a great choice for presenters. **Mar 95**

★★★★ **The Presenter Plus Mac/PC, Consumer Technology Northwest, 503/643-1662, \$429.** Small, external TV-converter supports output to television from most Macs with built-in video. **Aug 94**

★★★★★ **QA-350 LCD, Sharp Electronics Corp., 800/237-4277, \$2495.** At less than half the cost of a typical active matrix LCD panel, this passive matrix projection panel offers an economical alternative. **Jul 94**

★★★★★ **QuickCam, Connectix Corp., 415/571-5100, \$149.95.** For as little as \$99 (street price), this tiny, fun, easy-to-use, digital video camera lets users experiment with video input for making QuickTime movies or capturing still images. **Mar 95**

★★★★★ **Radius LeMansGT, Radius, 408/434-1010, \$2499.** Fast, 24-bit accelerated graphics card has automatic 30-bit CLUT calibration and can switch resolution on the fly via a pop-up menu. **Oct 94**

★★★ **RasterOps Horizon 24, RasterOps, 408/562-4200, \$1999.** This 13-inch 24-bit accelerated graphics card is slower than anticipated and overpriced. The ROM can, however, be upgraded via software. **Oct 94**

★★★★ **Simply TV, E-Machines, 408/541-6100, \$439.** Easy-to-install video card plugs snugly into a PDS slot, and allows you to use your Mac with a television for display. **Aug 94**

★★★★★ **SuperMac Spectrum Power+1152, SuperMac, 408/541-6100, \$1399.** Fast, relatively inexpensive, 24-bit accelerated graphics card can switch resolutions from the keyboard and offers zoom and pan options. **Oct 94**

★★★ **Tornado Graphics Card, Mirror Technologies, 612/832-5622, \$699.** Inexpensive 24-bit accelerated graphics card has zoom and pan options but is relatively slow. **Oct 94**



# Streetwise Shopper

## SPECIAL HARDWARE AND SOFTWARE BUYING OPPORTUNITIES

### Selected and edited by Charles Barrett

The following listings include both time-sensitive promotions and open-ended offers being sponsored by Macintosh vendors and their resellers. Each listing indicates which products have been awarded a star rating in *Macworld's Reviews* (products rated ★★ or lower are not eligible for inclusion), have been selected as an **Editors' Choice**, or have won a **World-Class** award. In some cases, the editorial evaluation quoted is for an earlier product version. The Ⓢ symbol indicates that the product is Power Mac related. Except where otherwise indicated, prices given are suggested retail prices.

When placing an order, please mention that you saw the offer in *Macworld*. Should any problems arise, contact the *Streetwise Shopper* editor by fax (415/442-0766), phone (415/978-3241), or mail (*Macworld*, 501 Second St., San Francisco, CA 94107).

Vendors and resellers desiring to have products and services included in this section are encouraged to contact the *Streetwise Shopper* editor with particulars.

### BUNDLES

Ⓢ **Adobe PageMaker 5.0 + PageTools 1.0** Adobe Systems is including Extensis Corporation's \$129 PageTools collection of ten utilities (Dec 94 ★★★★★) free of charge with the CD-ROM version of its \$895 desktop publishing program (Nov 93 ★★★★★ for 680X0 version; 1994 **World-Class**). PageTools adds a customizable tool bar, page preview, and navigation and printing tools. Adobe Type On Call 4.0 (Mar 94 "The Right Font" **Editors' Choice**), a locked CD-ROM containing 2000 fonts, is also included. Registrants get a key to access 220 PostScript Type 1 typefaces from it, along with the opportunity to purchase additional typefaces for \$25 each. Included on the PageMaker disc are TrapMaker, a plug-in module for trapping; CheckList for checking publication printer settings, font usage, style sheets, and linked graphics files; and Adobe Acrobat Reader for viewing documents stored in the Portable Document Format. Call 800/628-2320 for more information and to order. *Offer expires 6/30/95.*

**Authorware 3.0 + Director 4.0 + Macromodel + SoundEdit 16 + Adobe Premiere 4.0** Macromedia is providing the following software free of charge to customers who purchase its \$4995 Authorware multimedia scripting/presentation software (Feb 94 ★★★★★ for version 2.0.1); Macromedia Director, an \$1195 multimedia/animation program (Sep 94 ★★★★★; 1994 **World-Class**); Macromodel, a \$1495 3-D modeler (May 94 ★★★★★); SoundEdit 16, a \$379 digital audio editor (Dec 94 ★★★★★); and Adobe Premiere, a \$795 video editor (Dec 94 ★★★★★; 1994 **World-Class**). Call 800/288-4797 for more information. *Offer good through at least 6/30/95.*

**Ethernet Card + Sonic LocalBridge + Sonic SNMP** Sonic Systems is including \$250 worth of software products free of charge with its \$99 NuBus, or LC twisted-pair, Ether-

net cards. This software consists of a LocalTalk-to-EtherTalk bridge for a device such as a laser printer or PowerBook, and an SNMP driver for simplifying Ethernet network-management tasks. Call 800/535-0725 for more information.

Ⓢ **MacTools Pro 4.0 + Now Utilities 5.0** MacWarehouse is bundling Now Software's \$129.95 system utility collection (Jan 95 ★★★★★; 1994 **World-Class**) with Central Point Software's \$149.95 MacTools Pro disk utility (May 95 ★★★★★). Available for \$89.95 (regularly \$184.95). Call 800/255-6227 to order MSB 0032. *Offer good while supplies last.*

**Master CD + Toast CD-ROM Pro** MicroNet is including Astarte's \$1595 Toast CD-ROM Pro recording software free of charge with its \$1995 Master CD, which has the ability to record up to 650MB of data (including audio and video) on a single disk from virtually any storage device, on the fly. The Toast CD-ROM software is also included with MicroNet's \$4995 Master CD Pro, which provides 4x recording speed. Call 800/650-3475 for nearest dealer.

**Optima Storage Subsystem + Adobe Premiere 4.0 or Adobe Photoshop 3.0** Optima Technologies is bundling full versions of two Adobe software applications with its high-end storage subsystems. Promotionally priced solutions for digital video include Adobe's \$795 Premiere video-editing program (Dec 94 ★★★★★; 1994 **World-Class**) bundled with a 4GB to 16GB Fast DAT drive for \$1698, or with a 3.6GB modular RAID subsystem for \$4998. Promotionally priced solutions for prepress and graphics include Adobe's \$895 Photoshop image-editing program (Feb 95 "Innovative Image Editors" **Editors' Choice**; Jan 95 ★★★★★; 1994 **World-Class**) bundled with a 4GB to 16GB Fast DAT drive for \$1698, or with a 4.2GB modular RAID subsystem for \$4998. All four bundles include Optima's \$349 DeskTape 2.0 tape-mounting software. Call 714/476-0515 for more information. *Offer expires 4/30/95.*

**PLI Disks + PowerMerge LE** PLI is including a limited edition of Leader Technologies' \$129 file-synchronization software (Aug 94 ★★★★★ for PowerMerge 2.0) with its removable disk drive media for backup from desktop Macs to PLI drives. Call 800/288-8754 for more information.

**Relisys Scanner + Wacom ArtPad** Mac's Place at Egghead is offering Wacom Technology's \$199 ArtPad graphics tablet—which includes the cordless, battery-less, pressure-sensitive UltraPen stylus and driver—free with the purchase of any of five Relisys scanner models, all of which feature a free transparency adapter. Call 800/905-0009 to order the Reli 9612 for \$1398.95 (item #9999BH), Reli 9624 for \$1898.95 (#10000BH), Reli 2412 for \$789.95 (#9990BH), Reli 4816 for \$989.95 (#10001BH), and Reli 4830 for \$1649.95 (#10002BH). *Offer good through at least 4/30/95.*

**SingleCharger 500 or PowerCenter 500 + Lind Battery Utilities 2.01** Lind Electronics is including its \$29.95 Battery Utilities 500 software, which analyzes all fixed and variable data stored in the PowerBook 500 series' Intelligent Battery, with each \$59.95 (lowered from \$79.95) Sin-

gleCharger 500 and \$249.95 PowerCenter 500. Both chargers also monitor charging temperatures, test for shorted cells, and recover overcharged batteries. Call 800/897-8994 for more information.

**SupraExpress 144 + Delrina FaxPro + Internet Starter Kit** Mac's Place at Egghead is offering a bundle consisting of Supra's \$149.95 14.4-Kbps external fax modem; Delrina's \$129.95 FaxPro 1.5.1 software (Feb 94 ★★★★★ for version 1.0); and Adam C. Engst's \$39.95 Internet Starter Kit, a 600-page book and installation disk. A starter disk for Apple's eWorld service, plus ten free hours online, is also included. Available for \$159.95 (item #10332BH) by calling 800/905-0009. *Offer good through at least 4/30/95.*

### COMPETITIVE UPGRADES

Ⓢ **ACT 2.0** Symantec is offering this \$179.95 contact manager (Mar 95 ★★★★★) to registered users of any other contact manager through resellers for around \$99. Call 800/441-7234 for more information.

Ⓢ **ClarisWorks 3.0** Claris is offering this \$129 integrated software package (Feb 95 ★★★★★; Feb 94 "Integrated Software" **Editors' Choice** for version 2.0.1; 1994 **World-Class**) for \$69 to registered users of Microsoft Excel, Office, Word, and Works; WordPerfect and WordPerfect Works; GreatWorks; RagTime; BeagleWorks; and Lotus 1-2-3. Call 800/544-8554 for more information.

Ⓢ **Macromedia FreeHand 5.0** Macromedia is offering this \$595 draw program (May 95 ★★★★★) to registered users of MacDraw, Canvas, QuarkXPress, and Adobe Illustrator and PageMaker for \$149. Call 800/989-3762 for more information.

### SPECIAL DISCOUNTS

Ⓢ **CanOpener 3.0** Abbott Systems is offering this new version of its \$125 file-opening utility (May 95 ★★★★★) for \$59 (incl. S&H). Call 800/552-9157 to order. *Offer good through at least 5/31/95.*

**In Control For Workgroups** Attain is offering a \$299.90 two-user pack of this multiuser version of its project planner and organizer (Oct 94 ★★★★★ for single-user In Control 3.0.4) for an introductory price of \$199.95. Call 800/925-5615 for more information. *Offer expires 6/30/95.*

**Select Effects Digital Library** CASCOM International is offering the first three volumes of this royalty-free CinePak-compressed video/audio clip collection on CD-ROM at an introductory price of \$199.95 per volume, or \$549.95 for all three. Each \$249.95 volume contains 100 digital video effects in either JPEG or CinePak format and 50 audio tracks that include music beds and sound effects up to one minute in length. A Kodak Browser is included for previewing purposes. Call 800/889-0477 for more information and to order. *Offer good through at least 6/30/95.* **m**



Name Chuck White  
Title Computer Specialist  
Company Honeywell  
Age 38  
Pets 2 cats  
Hobbies Tennis,  
computers, music  
Favorite Band Sade, Enya,  
Larry Carlton  
Favorite Artist Ansel Adams  
Favorite Color Blue  
Favorite Shape Rectangle  
Favorite Food Steak, pizza  
Favorite Publication *"Macworld."*

Because of its thorough  
and timely software and  
hardware reviews."



**Macworld**  
THE MACINTOSH® AUTHORITY



# Macworld

## Advertiser Index

Say you saw it in Macworld. To purchase products advertised in this issue call the phone numbers below or use the reader service number for our FastFacts Product Information Card located after the product index.

Page No.	Advertiser	Reader Svc. No.	Phone	Page No.	Advertiser	Reader Svc. No.	Phone	Page No.	Advertiser	Reader Svc. No.	Phone
200	Advanced Business Center	225	800/723-8262	233	Educorp	157	800/843-9497	IBC	NEC Technologies	16	800/NEC-INFO
29	Agfa	158	800/685-4271	14	Engineered Software	12	910/299-4843	80	nView Corp.	117	800/736-8439
40	Agfa	43	800/685-4271	30-31	Epson America	—	800/BUY-EPSON				
12	Agio	—	800/688-2446	180-181	Express Direct	81	800/765-0020				
184-185	Alliance Peripheral Systems	62	800/874-1428					24	Performance Systems International	95	800/8PSI82
163-164	America OnLine	—	800/827-6364	6-7	Fujitsu	202	800/831-4094	27	Pinnacle Micro	115	800/553-7070
84-85	American Power Conversion	72	800/788-2208					14	PowerTable/ScanCo	—	800/722-6263
132	Anthro	—	800/325-3841	140	General Parametrics	237	800/223-0999	9	Pro CD	217	800/992-3766
22-23	Apple Computer	—	—	74	Graphsoft	46	410/290-5114	187	ProDirect	135	800/524-9952
121	Apple Computer	—	—								
				39	Hewlett Packard	11	—				
194-195	BottomLine Distribution	63	800/990-5794	68	Hewlett Packard	—	—	113	QMS	—	800/392-7559
				47	HSC Software	5	805/566-6200				
11	Caere Corp.	69	800/535-SCAN								
53	Canon Graphics Systems	110	800/OK-CANON	10	Image Club	50	800/387-9193	28	Reply Corp.	—	800/801-6898
134	CD ROM Expo	—	—	12	IMAXIS	88	800/462-9470	42	Samsung Electronics America, Inc.	198	800/933-4110
131	CE Software, Inc.	170	800/523-7638	107	Insignia Solutions	68	800/848-7677	145-146	Signature Software	300	800/925-8840
137	CE Software, Inc.	171	800/523-7638	142	Inspiration Software	—	800/877-4292	189-191	Spin Peripherals	248	800/215-9200
178-179	ClubMac	96	800/CLUB MAC	161	Intuit	—	800/781-6999				
101	CompuServe	66	800/848-8199					159	SPSS INC.	85	800/457-8287
196-197	Computer Discount Warehouse	2	800/861-4CDW	BC	Kensington Microware, Ltd.	—	800/535-4242	51	Statsoft	99	918/583-4149
50	Connectix	192	800/950-5880					133	Strictly Business Expo	—	—
52	Connectix	191	800/950-5880	15-18	LaCie	52	800/999-1422	199	SuperMicro	126	800/352-3413
70	Corel Corporation	78	800/836-3729					62	SyQuest	249	800/245-2278
202-203	CRA Systems Inc.	20	800/375-9000	182-183	Mac Bargains	70	800/619-9091				
				82	MacAcademy	106	800/527-1914	76	Tektronix	143	800/835-6100
44	Dantz Development	26	800/225-4800	54-55	MacConnection	—	800/800-3333	201	The Mac Zone	71	800/436-0606
20	Datawatch	—	508/988-9700	171-176	MacMall	131	800/222-2808				
48	DayStar Digital	7	800/532-7853	204	MacProducts	65	800/347-8755	72	Umax	196	800/859-2728
78	Delrina Corporation	137	800/631-8118	49	Macromedia	86	800/326-2128	124-125	ViewSonic	59	—
21	Deneba Software	57	800/733-6322	192-193	MacWarehouse	150	800/255-6227	13	Viking Components	233	800/338-2361
194-195	DGR Technologies	63	800/990-5794	128	Macworld Active Buyer Days	—	—	66	Visioneer	18	800/787-7007
186	DigiCore	269	800/858-4622	188	MegaHaus	245	800/786-1184	93	Xante Corporation	112	800/926-8839
200	Digital Axis	83	800/747-7555	IFC-1	Microsoft	—	—	64	Xerox Corporation	100	800/ASK-XEROX
26	DiiMo Technologies	299	800/503-4466	32	Microtech Int'l	129	800/626-4276				
177	Direct Connections	121	800/572-4305	46	Multimedia Design Co.	91	800/921-9993				
198	Direct Tech	298	800/279-5520								
				2-3	NEC Technologies	15	800/NEC-INFO				
8	EA Research	53	800/681-6566								



# Macworld

## Product Index

A quick and easy product index from Macworld. Simply use this index to find the page or advertiser of the products which interest you. Then, use the reader service number for our FastFacts Product Information Card located on the following page.

Page No.	Advertiser	Reader Svc. No.	Page No.	Advertiser	Reader Svc. No.	Page No.	Advertiser	Reader Svc. No.	Page No.	Advertiser	Reader Svc. No.
<b>SOFTWARE</b>			<b>STATISTICAL</b>			<b>HARD DISKS/STORAGE</b>			<b>SERVICES</b>		
<b>BUSINESS</b>			159	SPSS INC.	85	184-185	Alliance Peripheral Systems	62	<b>ON LINE</b>		
78	Delrina Corporation	137	51	Statsoft	99	194-195	BottomLine Distribution	63	163-164	America OnLine	—
142	Inspiration Software	—	<b>UTILITIES</b>			178-179	ClubMac	96	101	CompuServe	66
161	Intuit	—	137	CE Software, Inc.	171	194-195	DGR Technologies	63	<b>TRADESHOWS/CONFERENCES</b>		
IFC-1	Microsoft	—	50	Connectix	192	177	Direct Connections	121	134	CD ROM Expo	—
51	Statsoft	99	44	Dantz Development	26	198	Direct Tech	298	<b>TRAINING</b>		
<b>CAD/CAM</b>			107	Insignia Solutions	68	6-7	Fujitsu	202	82	MacAcademy	106
14	Engineered Software	12	<b>HARDWARE</b>			15-18	LaCie	52	<b>ACCESSORIES</b>		
74	Graphsoft	46	<b>BOARDS</b>			204	MacProducts	65	<b>FURNITURE</b>		
<b>CD ROM</b>			26	DiiMo Technologies	299	188	MegaHaus	245	132	Anthro	—
70	Corel Corporation	78	8	EA Research	53	27	Pinnacle Micro	115	14	PowerTable/ScanCo	—
233	Educorp	157	28	Reply Corp.	—	187	ProDirect	135	<b>MISCELLANEOUS</b>		
9	Pro CD	217	<b>CD ROM</b>			199	SuperMicro	126	BC	Kensington	—
<b>COMMUNICATION</b>			233	Educorp	157	62	SyQuest	249	<b>MAIL ORDER</b>		
78	Delrina Corporation	137	<b>COMPUTER SYSTEMS</b>			13	Viking Components	233	200	Advanced Business Center	225
<b>ENTERTAINMENT</b>			121	Apple Computer	—	<b>INPUT DEVICES</b>			184-185	Alliance Peripheral Systems	62
70	Corel Corporation	78	202-203	CRA Systems Inc.	20	66	Visioneer	18	194-195	BottomLine Distribution	63
<b>-fonts</b>			180-181	Express Direct	81	<b>MISCELLANEOUS</b>			178-179	ClubMac	96
145-146	Signature Software	300	199	SuperMicro	126	84-85	American Power Conversion	72	196-197	Computer Discount Warehouse	2
<b>GRAPHICS/DTP</b>			<b>DIGITIZERS/SCANNERS</b>			53	Canon Graphics Systems	110	194-195	DGR Technologies	63
21	Deneba Software	57	29	Agfa	158	<b>MULTIMEDIA</b>			186	DigiCore	269
47	HSC Software	5	40	Agfa	43	46	Multimedia Design Co.	91	177	Direct Connections	121
10	Image Club	50	200	Digital Axis	83	<b>PRINTERS</b>			198	Direct Tech	298
49	Macromedia	86	12	IMAXIS	88	22-23	Apple Computer	—	180-181	Express Direct	81
<b>MISCELLANEOUS</b>			32	Microtech Int'l	129	53	Canon Graphics Systems	110	182-183	Mac Bargains	70
142	Inspiration Software	—	72	Umax	196	30-31	Epson America	—	54-55	MacConnection	—
<b>MULTIMEDIA</b>			<b>DISPLAY</b>			140	General Parametrics	237	171-176	MacMail	131
49	Macromedia	86	202-203	CRA Systems Inc.	20	39	Hewlett Packard	11	204	MacProducts	65
<b>NETWORKING</b>			200	Digital Axis	83	68	Hewlett Packard	—	192-193	MacWarehouse	150
131	CE Software, Inc.	170	32	Microtech Int'l	129	2-3	NEC Technologies	15	188	MegaHaus	245
<b>OCR</b>			IBC	NEC Technologies	16	113	QMS	—	187	ProDirect	135
11	Caere Corp.	69	80	nView Corp.	117	76	Tektronix	143	189-191	Spin Peripherals	248
<b>ONLINE</b>			42	Samsung Electronics America, Inc.	198	93	Xante Corporation	112	201	The Mac Zone	71
24	Performance Systems International	95	124-125	ViewSonic	59	64	Xerox Corporation	100			
<b>PERSONAL</b>			<b>EXPANSIONS/UPGRADES</b>			<b>SECURITY</b>					
161	Intuit	—	48	DayStar Digital	7	84-85	American Power Conversion	72			
			26	DiiMo Technologies	299	20	Datawatch	—			
			13	Viking Components	233	<b>UTILITIES</b>					
			<b>FURNITURE</b>			20	Datawatch	—			
			12	Agio	—	<b>VIDEO</b>					
						52	Connectix	191			



# Macworld

## JUST FOR YOU. FREE PRODUCT INFORMATION FROM MACWORLD.

There's no cost or obligation. We even pay the postage! Simply fill in the questionnaire, then circle the numbers on the card below for the products that interest you. Numbers for advertised products can be found in the ad and in both the Product Index and Ad Index. Fold card and mail. No staples please.

### FASTFAX

For faster results just fax this sheet to  
+1-415-637-4343. Please indicate your fax  
number where indicated.

Please answer these questions so that we may better serve you.

- A. Including yourself, approximately how many people are employed at your entire work-site (i.e., employees in your office, building, or cluster of buildings)? (Check one.)
- 01 ☐ 1000+  
02 ☐ 999 - 100  
03 ☐ 99 - 25  
04 ☐ Under 25
- B. Which of the following computers are installed at this entire work-site? (Check all that apply.)
- 05 ☐ Apple Workgroup Servers/  
Mac Quadra-series  
06 ☐ Mac Centris-series/II-series/LC III/  
Performa 600/450/SE 30  
07 ☐ Mac LC/LC II/Performa 430/405/  
400/200/Classic-series/SE/Plus/  
512K/128K/Portable  
08 ☐ Mac PowerBook-series/Duo-series
- C. What is the total number of Macs installed at this entire work-site? (Check one.)
- D. For how many Macintosh computers within this entire work-site do you have purchase involvement for products and/or services? (Check one.)
- E. In which ways are you ever involved in purchase decisions for Macintosh products at this entire work-site? (Check all that apply.)
- 21 ☐ Initiate/Determine need for product/capabilities/features  
22 ☐ Evaluate, recommend, or approve brands/models  
23 ☐ Evaluate, recommend, or approve purchase source  
24 ☐ Authorize purchases
- F. Over the next 12 months, how much will this entire work-site spend on Macintosh products and/or services? (Check one.)
- 25 ☐ \$1 million or more  
26 ☐ \$999,999 - \$500,000  
27 ☐ \$499,999 - \$100,000  
28 ☐ \$99,999 - \$50,000  
29 ☐ \$49,999 - \$10,000  
30 ☐ Under \$10,000
- G. Considering the entire work-site, which of the following Macintosh hardware and software products are currently installed? (Check all that apply.)
- 31 ☐ Business software (Word processing, spreadsheet, database, etc.)  
32 ☐ Graphics/publishing software  
33 ☐ Monitors/displays  
34 ☐ Printers/scanners  
35 ☐ Networking/communications hardware and/or software  
36 ☐ Multimedia/AV hardware and/or software  
37 ☐ Mobile computing products (PowerBooks, peripherals, software, etc.)
- H. What is your primary job function? (Check one.)
- 38 ☐ Computer Reseller/VAR/VAD  
39 ☐ MIS/DP/IS/Network Management  
40 ☐ Engineering  
41 ☐ R&D/Scientific  
42 ☐ Corporate/General Management  
43 ☐ Accounting/Finance  
44 ☐ Marketing/Sales/PR/Communications  
45 ☐ Art/Design/Creative Services

Thank You!

Please print or type all information.

Title \_\_\_\_\_  
Co. \_\_\_\_\_  
Phone \_\_\_\_\_  
Fax \_\_\_\_\_



Free Product Information

1 2 3 4 5  
6 7 8 9 10  
11 12 13 14 15  
16 17 18 19 20  
21 22 23 24 25  
26 27 28 29 30  
31 32 33 34 35  
36 37 38 39 40  
41 42 43 44 45  
46 47 48 49 50  
51 52 53 54 55  
56 57 58 59 60  
61 62 63 64 65  
66 67 68 69 70  
71 72 73 74 75  
76 77 78 79 80  
81 82 83 84 85  
86 87 88 89 90  
91 92 93 94 95  
96 97 98 99 100

101 102 103 104 105  
106 107 108 109 110  
111 112 113 114 115  
116 117 118 119 120  
121 122 123 124 125  
126 127 128 129 130  
131 132 133 134 135  
136 137 138 139 140  
141 142 143 144 145  
146 147 148 149 150

151 152 153 154 155  
156 157 158 159 160  
161 162 163 164 165  
166 167 168 169 170  
171 172 173 174 175  
176 177 178 179 180  
181 182 183 184 185  
186 187 188 189 190  
191 192 193 194 195  
196 197 198 199 200  
201 202 203 204 205  
206 207 208 209 210  
211 212 213 214 215  
216 217 218 219 220  
221 222 223 224 225  
226 227 228 229 230  
231 232 233 234 235  
236 237 238 239 240  
241 242 243 244 245  
246 247 248 249 250

251 252 253 254 255  
256 257 258 259 260  
261 262 263 264 265  
266 267 268 269 270  
271 272 273 274 275  
276 277 278 279 280  
281 282 283 284 285  
286 287 288 289 290  
291 292 293 294 295  
296 297 298 299 300



Free Macworld Shopper Information

401 402 403 404 405  
406 407 408 409 410  
411 412 413 414 415  
416 417 418 419 420  
421 422 423 424 425  
426 427 428 429 430  
431 432 433 434 435  
436 437 438 439 440  
441 442 443 444 445  
446 447 448 449 450  
451 452 453 454 455  
456 457 458 459 460  
461 462 463 464 465  
466 467 468 469 470  
471 472 473 474 475  
476 477 478 479 480  
481 482 483 484 485  
486 487 488 489 490  
491 492 493 494 495  
496 497 498 499 500

Please print or type all information.

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_  
State \_\_\_\_\_ Zip \_\_\_\_\_

☐ Check box and fill in the appropriate information to subscribe to Macworld. You will be billed \$24.00 for a 1-year (12 issue) subscription (U.S. only).

Expires July 7, 1995 S1 May 1995





## FREE PRODUCT INFORMATION.

Get valuable information about the products that interest you. There's no cost; no obligation. Just fill out both sides of this FASTFACTS Information form. Circle the numbers for the desired products. Then mail the card. We pay the postage! For even faster results fill out and send the card via our FASTFAX.

Now fast... get the facts, the competition's gaining on you.

# Macworld

---

FOLD HERE AND CLOSE WITH TAPE. DO NOT STAPLE!

---

**BUSINESS REPLY MAIL**


FIRST CLASS MAIL

PERMIT NO. 215

PITTSFIELD, MA

POSTAGE WILL BE PAID BY ADDRESSEE

NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES



# Macworld

Reader Service Department  
P.O. Box 5299  
Pittsfield, MA 01203-9906







Since 1985

THE LARGEST AUTHORIZED FULL LINE  
APPLE MACINTOSH® MAIL-ORDER  
**SUPERSTORE!**  
Verified low prices with over 2500 products on sale!

**Lower Than  
Warehouse  
Prices!!**

Now you can order Macintosh® and  
Performa® computers by mail!

**Macintosh®  
BEST BUYS!**



**Best Data  
28.8 V.34  
Fax/Data  
Modem**

**\$198<sup>99</sup>** #67176

**VividKey \$59<sup>99</sup>**  
EXTENDED  
KEYBOARD #67595



**Macintosh®  
Action CD Pack**

5 Super  
Macintosh®  
titles on 1 CD!  
Plus Rebel Assault

**\$58<sup>99</sup>** #69104

**FASTEST DELIVERY  
SERVICE GUARANTEE!!**

"We will deliver your order by  
10:30am THE NEXT DAY  
or pay for your shipping!"\*

\*Limited to in-stock orders placed before 8pm  
(EST) not requiring configuration and  
delivered by FedEx® to destinations  
within the contiguous U.S.  
[Next Day] not available  
to certain rural areas.]



Authorized  
Catalog Reseller

**CALL TODAY  
FOR YOUR  
FREE CATALOG!!**

**800-222-2808**

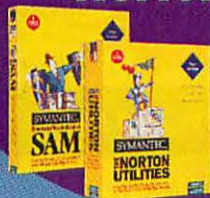
WE HAVE THE  
LARGEST SELECTION  
OF APPLE®  
PRODUCTS!!



**SAM 4.0 &  
Norton Utilities 3.1**

SAM 4.0 w/CPU purchase **\$69<sup>99</sup>** #69285

Norton Utilities w/CPU purchase  
**\$69<sup>99</sup>** #69286



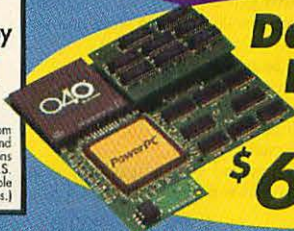
**4MB  
SIMMs  
as low as**



**\$165** #4468

**DayStar  
PowerCard  
601**

**\$639<sup>99</sup>** #67669



**SyQuest  
Cartridges  
as low as**  
**\$44<sup>99</sup>**



**1 • 800 • 222 • 2808**

Fax 310-222-5800 • Customer Service 800-560-6800

Overnight FedEx®  
Delivery by 10:30am!  
**\$3 Per Order\***

**FedEx**  
Federal Express  
\*See page 5 for conditions







**To Order, Call Toll Free**  
**1 • 800 • 222 • 2808**

PRIORITY CODE:  
**D552MG14**

**Call today  
 for your  
 FREE  
 Catalog!!**

**Fax: 310-222-5800**  
**Customer Service: 800-560-6800**  
**International Orders: 310-787-4500**  
**Mail: MacMail Order Dept., 2645 Maricopa St., Torrance, CA 90503-5144**



**MacMail has it all!!**  
 If you see a lower price not advertised in this magazine, please call us and we'll do our very best to BEAT that advertised price.

## HP DeskJet 1200C/PS Printer

HP's most powerful office printing with full color



- 600x300dpi black text with Resolution Enhancement Technology • 300 dpi full color printing - up to 16.7 million colors • Up to 7ppm for black text, 1-2 ppm for color graphics • 4MB memory, expandable to 20MB • Postscript level 2 with 35 scalable fonts for Macintosh® and Windows™ • Color HP PCL 5 with 45 scalable typefaces for professional-looking text and graphics

#61618 **\$1649<sup>99</sup>**

Black Cartridge DeskJet 1200C '25" #62083 Magenta Cartridge DeskJet 1200C '28" #62082 Cyan Cartridge DeskJet 1200C '28" #62084 Yellow Cartridge DeskJet 1200C '28" #62081

## HP DeskWriter 310 Printer

**SUPER BUY!!**

With FREE Cut Sheet Feeder and Color Kit!

- Crisp 300dpi black printing on plain paper
- Optional color printing
- FAST - 3 ppm
- Black print speed
- Compact, portable design fits neatly into any briefcase
- Light weight international power adapter with automatic voltage switching
- 35 scalable typefaces and compatibility with TrueType® and ATM
- Serial and Apple LocalTalk® interfaces for convenient connections



#68879 **\$299**

Transparency Adapter for Ilcx .....	'644"	#63585
DeskWriter 310/320 Battery .....	'36"	#60750
DeskWriter 310/320 Rapid Charger .....	'74"	#60751
DeskWriter 310/320 Carrying Case .....	'74"	#60752
DeskWriter 310/320 Sheet Feeder .....	'69"	#60749
Black Ink Cartridge for DeskWriter 310/320 .....	'19"	#63511
Toner for LaserWriter II, LaserJet IID, III, IID .....	'77"	#51071
Toner for LaserWriter Plus and LaserJet Plus .....	'84"	#61449
Toner for Per. LaserWriter LS, NT, NTR, LJ HP .....	'74"	#1399
Toner for LaserWriter Pro, LJ 4, 4M, 4 Plus, 4M Plus .....	'108"	#60834
Black Cartridge for DeskWriter, DeskJet (1000 pages) .....	'24"	#60123
Tri Color Cartridge DeskWriter/DeskJet .....	'27"	#3344
Color Printing Kit for 310/320/540 .....	'36"	#62565
Toner for LaserJet III, 4Si, 4SiMx .....	'119"	#3638
Toner for LaserWriter 4Mv .....	'154"	#67363

**hp HEWLETT PACKARD**  
 Authorized Dealer

**MONEY BACK  
 30 DAY  
 GUARANTEE**

## HP LaserJet 4MP Printer

Outstanding quality personal 600-dpi laser printing for Macintosh®

- True 600dpi resolution utilizing Resolution Enhancement technology and microfine toner
- RISC processor delivers fast 4ppm
- Postscript Level 2
- 35 Adobe scalable fonts
- 6MB RAM standard memory
- LocalTalk®, HP Bi-Tronics parallel and serial interfaces standard
- Automatic language and I/O switching for easy, unattended operation in multiple-platform environments
- Flat paper path handles media up to 42-pound thickness and as small as a 3"x5" card
- Powersave mode
- Macintosh® and Windows™ PC compatible



**\$1369**

## CardShopCD/Notecards

\*with purchase of any inkjet printer only **\$17<sup>99</sup>\***

#68501



## HP ScanJet IICx Scanner

The high performance color/grayscale scanner that provides advanced features at a breakthrough price!

- Superior image quality with 1600 dpi enhanced resolution; 400 dpi optical resolution
- 24 bit color allows you to scan over 16 million colors
- HP AccuPage for better text recognition
- Optional transparency adapter available
- Optional 50 page document feeder available
- One-year HP Express Exchange Warranty for 24-hour replacement service



#66369 **\$949**

Includes Adobe® Photoshop LE

## HP ScanJet 3p Scanner

HP's lowest cost, grayscale complete scanning solution!

- 256 grayscale levels
- Includes software for text/images scanning and for making copies on your printer
- Add text, line art and photo to documents
- 300 dpi resolution, extendable to 1200dpi
- Compatible with Macintosh® or Windows



#66436 **\$485**

Bonus: Includes FREE Calera WordScan OCR Software

Automatic Document Feeder for HP SCANJET 3p Scanner #66437 **\$204<sup>99</sup>**

## RAM DOUBLER™ 1.5

Everyone needs more RAM. But you've probably been putting off buying more SIMMS because they cost too much and they're a hassle to install. Not anymore. With RAM Doubler™, forget about adding SIMMS - you're one click away from doubling your memory with just software. RAM Doubler™ 1.5 works without complicated installation or expensive hardware and it gives your Mac™ twice as much memory to open applications. Just click to double your RAM. RAM Doubler™ is compatible with all applications. Requires Mac™ II or better, 4MB RAM. Hard disk required for Mac™ with 4MB to 6MB RAM. Cannot be used with original Classic, SE, Plus, original LC or PowerBook™ 100.

Regular Price **\$53<sup>99</sup>**  
 #65785

\*With purchase **\$49<sup>99</sup>\***  
 of CPU #66970

## QUICKCAM

*Jazz up your presentations, quickly prototype multimedia videos or simply amaze your friends.*

Introducing the coolest, least expensive video camera for the Macintosh® computer. Installation is easy - just plug in one cable into your modem or printer port, insert the disk and click on the installer. QuickCam comes with a built-in microphone, separate base and all the software you need to immediately create QuickTime™ movies and still pictures to 320x240 pixels at 4 bit grayscale image quality.



**\$98<sup>99</sup>**  
 #65746

## PaperPort™ Turn your Mac™ Into A Fax, Copy and Filing Machine

PaperPort™ fits anywhere and goes anywhere!

Designed to sit between your keyboard and monitor PaperPort™ fits on the most crowded desktops! At 12.5"x3", you can take it anywhere and it fits in nearly any computer bag.

**Faster than speeding bullet!**

Feed a business letter into PaperPort™ and it spits it back at you and displays the digital page on your screen in less than 6 seconds.

**Easier to use than the Mac™ itself!**

PaperPort™ uses exclusive paper driven™ technology - There's not even an on/off switch - Just touch paper to PaperPort™ and it takes over and does the rest automatically. Handles virtually any type of paper!

**Your Mac™ can fax!**

Never have to leave your desk to send paper again.

File your paper on your Mac™!

The powerful search software allows you to find anything quickly. Keep everything in one place and simplify your life.

**Your Mac™ can be a copy machine!**

That's right, scan a page, send it to your printer and you've just made a copy. And you've just done it right from your desk.

**There's so much more!**

PaperPort™ storage and communications "command center" has links to printers, fax and OCR!

**\$359<sup>99</sup>**

#66433



**OCR software included**

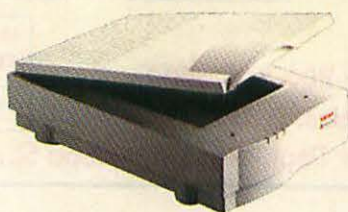


## VISTA-S8

6400 dpi, High Speed,  
Single Speed, Color Scanner

The new Vista-S8 with its UltraView® Technology produces smoother interpolation for sharp, clear images. Plus Umax's own MagicMatch color management technology provides accurate and vivid colors.

- Supports up to 8.5"x11.7" (reflective) and 8.5"x10" (transparency)
- SCSI 2 interface with cable included
- Scans black and white, color and line art
- Single pass with single cold lamp technology
- Optical resolution of 800x400dpi
- Descreening, auto-density adjustment, filtering functions
- TWIN and ASPI compliant
- Includes Adobe® Photoshop LE and OmniPage Direct



**\$729<sup>99</sup>**  
#67757

# UMAX™

## POWERLOOK

It Beats Other Flatbed Scanners...  
Like a Drum.

1200 dpi Color Scanner

- 30-bit scanning mode recognizes more than one billion colors and 1,024 shades of gray (10-bits per pixel); true 30-bit output!
- Single pass CD imager captures 30-bit color without the need for prisms, filters or color lamps. This gives you superior images with outstanding reliability
- Includes full version Adobe® Photoshop 3.0 and Kai's Power Tools SE
- 2400 dpi maximum scanning resolution (interpolated), with 1200x600 optical
- Supports color, grayscale, halftone, line art modes
- Built-in SCSI-II interface
- Scaling from 1% to 400% in 1% increments



**\$2999<sup>99</sup>**  
#66132

**PowerLook 1200x600**

w/o transparency adapter and without software

**\$2499<sup>99</sup>**  
#68859

## External PowerTape 4GB DAT

PowerTape is your low cost alternative to high capacity backup. With up to 4 gigabytes compressed capacity (2 GB native) and a great price, choosing PowerTape is easy! Plus, PowerTape gives you the quality and reliability of a quarter inch cartridge (QIC) system that's 50 percent faster than 4mm drives.

- 4 Gigabyte capacity using data compression (2GB native)
- Up to 18MB/minute Transfer Rates. Typical rates of 10 to 15 MB/minute means a 1GB backup in just over an hour
- Complete with SCSI Controller for AT/ISA/EISA. Micro Channel® option available

**\$1439<sup>99</sup>**  
#68851

## External PowerTape 2.4GB DAT

- 2 Gigabyte capacity at a compression (1.2GB native)
- Up to 18MB/minute Transfer Rates. Typical rates of 10 to 15MB/minute means a 1GB backup in just over one hour
- Complete with SCSI Controller for AAT/ISA/EISA. MicroChannel® option available.
- Reads Colorado's QFA-700 tapes for backward compatibility with Retrospect 2.1 and cable

**\$1159<sup>99</sup>**  
#68850

Installation available for  
internal drives as low as **\$30** #2214

**PowerTape 1GB Internal w/Retrospect 2.1**  
.....\$699<sup>99</sup> #68847  
**PowerTape 2.4GB Internal w/Retrospect 2.1**  
.....\$1049<sup>99</sup> #68848  
**PowerTape 4GB Internal w/Retrospect 2.1**  
.....\$1279<sup>99</sup> #68849  
**Mounting Kit for 8100/80.....** \$19<sup>99</sup> #68846



Includes  
Retrospect 2.1  
and cable for  
Macintosh®

# MacMall BEST BUYS!!!

## 2X Double Speed External CD-ROM Drive

**BEST BUY!**



The Double speed external is an economical way to deliver the excitement of multimedia to your desktop. Includes RCA jacks for stereo audio connection, and RedLine® CD software for increased performance. The system also includes a SCSI system cable, power cord, installation and operating instructions and Red Line Player audio control software for music/audio CDs.

- Exceptional Speed and Dependability
- Space Saving Design
- 320ms Access Transfer Rate
- 300Kbytes/sec Sustained Transfer Rate
- 50,000 Hour MTBF
- PhotoCD Multisession and MPC Compliant
- Easy loading front tray (no caddy required)
- Sampling and digital filter for CD Audio
- RedLine® CD Utility Software
- Includes Stereo RCA Jacks
- Toll Free Support and 1 Year Warranty

**\$179<sup>99</sup>**  
#68028

## 4X Quad Speed External CD-ROM Drive

- Exceptional Speed and Dependability
- Space Saving Design
- 150ms Access Transfer Rate
- 600Kbytes/sec Sustained Transfer Rate
- 100,000 Hour MTBF
- PhotoCD Multisession and MPC Compliant
- Easy loading front tray (caddy required)
- Sampling and digital filter for CD Audio
- Toll Free Support and 1 Year Warranty



**BEST BUY!**

**\$349<sup>99</sup>**  
#68026

## Chinon CDA-535 Dual Speed External CD-ROM Drive

- Dual Speed Multisession
- 150K/sec for audio
- Multisession Photo CD compatible
- MPC2 & Macintosh®/QuickTime™ compatible
- 300K/sec sustained data transfer rate
- Supports High Sierra, ISO 9660, Apple® HFS, XA and Standard CD-Audio formats
- Built-in headphone jack & stereo output
- Double doors, sealed mechanism and auto pickup lens cleaning for dust protection



**\$299<sup>99</sup>**  
#66987

## Panasonic SideWriter

- Exceptionally Light Weight
- Space Saving Design
- 2MB RAM
- 4 pages per minute
- 300dpi laser quality
- 17 Adobe® Type 1 fonts
- 100 sheet multi-purpose paper tray
- LocalTalk® and parallel interfaces standard
- 1 Year Parts and Labor Warranty



**BEST BUY!**

**\$499<sup>99</sup>**  
#66668

## ASANTÉ WorldClass Networking Products

- Asanté MCLC10TIII  
10BaseT Ethernet Card LCIII Style .....\$59<sup>99</sup> #67642
- AsantéLite  
10BaseT Ethernet Card LCIII .....\$59<sup>99</sup> #67644
- Asanté MCLC10TIII  
Thin Ethernet Card LCIII Style .....\$69<sup>99</sup> #67317
- Asanté MC+LCIII  
Ethernet Card, 10BaseT/Thick .....\$64<sup>99</sup> #68292
- Above products work with Apple® Quadra®/Performa® 630, LCII, LCIII, Performa® 475, 550, 575, 577, 578 and Quadra® 605 models
- Asanté MacCon3NB  
NuBus w/64K, 10BaseT/Thin/Thick .....\$69<sup>99</sup> #67317
- Asanté 10BaseT  
FriendlyNet Adapter .....\$39<sup>99</sup> #65700



To Order, Call Toll Free

PRIORITY CODE: D552MG14

# 1 • 800 • 222 • 2808

**MacMall Now Open 24 Hours!!**







To Order, Call Toll Free

PRIORITY CODE:  
D522MG14

Call today  
for your  
**FREE**  
Catalog!!

**1 • 800 • 222 • 2808**

Fax: 310-222-5800

Customer Service: 800-560-6800

International Orders: 310-787-4500

Mail: MacMail Order Dept., 2645 Maricopa St., Torrance, CA 90503-5144

MacMail is your  
**SUPERSOURCE!!**

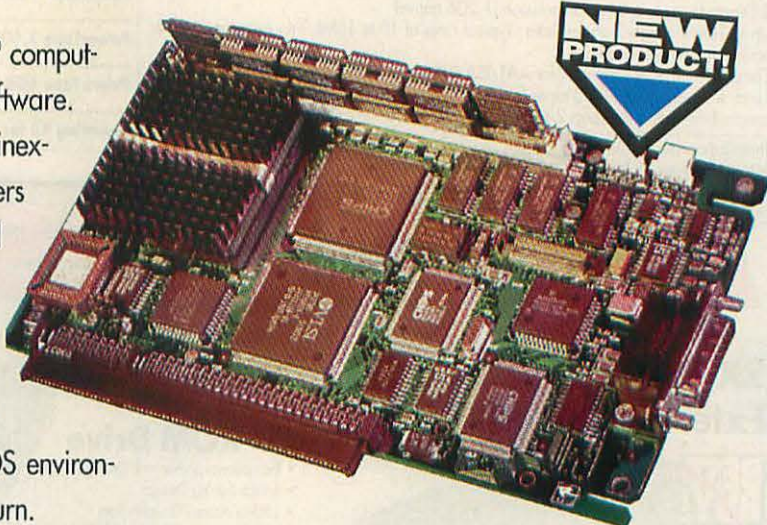
If you are looking for a Macintosh peripheral or accessory and don't see it then give us a CALL! We do our best to carry just about everything!

**WIDE**  
*Selection*

# Put a PC inside your Mac™!!

*Introducing DOS on Mac™,  
the fast affordable way to use DOS and Windows™  
applications on your Macintosh® Quadra or Centris computer*

Imagine combining the advantages of your Macintosh® computer with the freedom to run DOS and Windows™ software. Now, the DOS on Mac™ Card from Reply provides an inexpensive and convenient solution for Mac™ home users with DOS systems at work, business users in mixed DOS and Mac™ environments, or Mac™ users with a requirement for specific software only available in a DOS format. Because the DOS on Mac™ Card is designed with a dedicated DOS system. And it's easy to switch back and forth between Macintosh® and DOS environments. Just hold down the Command key and press Return.



- Run applications for DOS and Windows™ on your Macintosh® computer
- Switch from the Mac™ environment to DOS instantly - without quitting the Macintosh® applications you're using
- Open DOS and Windows™ files from the Macintosh® environment with Macintosh® PC Exchange™ software
- Use Macintosh®, DOS or Windows™ CDs on your Mac™ with the DOS on Mac™ card.
- Copy and paste information between Macintosh® applications and DOS or Windows™ applications
- Share memory installed on your Mac™ with the DOS on Mac™ card, or add up to 32MB industry standard memory to enhance the performance of DOS and Windows™ applications
- Connect a PC game controller or joystick to use with games for DOS and Windows™



## DOS on Mac™ Card 486 DX2/66

for Quadra® & Centris® 650, 700, 800, 900 and  
950 w/ DOS, Windows™ and Soundblaster

for Quadra® or Centris® 610  
w/ DOS, Windows™ and Soundblaster

**\$824<sup>99</sup>**

#68562

**\$824<sup>99</sup>**

#68563



# PhoneDisc

America's Phonebook on Disc!



Publisher: Digital Directory Assistance

## PhoneDisc Residential .....\$48<sup>99</sup> #67410

The Nation's White Pages on CD-ROM. Contains over 81 million directory listings nationwide. Search by name, narrow a search by city, state, street, ZIP and/or area code. Excludes reverse indexing to allow convenient two disc name searching of all 81 million listings.

## PhoneDisc Business .....\$48<sup>99</sup> #67411

The Top Rated Business Directory. 9.5 million U.S. listings fully indexed on just one CD-ROM. Includes 2,000 different categories of six digit SIC codes. Also allows you to search by word or alternate name to find the right category. Reverse indexing helps you find a business from just an address or phone number. Narrow name or business type searches by city, state, street, ZIP and/or area code.

## PhoneDisc Combo Pack .....\$78<sup>99</sup> #67412

Two great Products, One Great Price! PhoneDisc Residential and PhoneDisc Business bundled together! Holds 91 million listings.

## PhoneDisc PowerFinder .....\$145<sup>99</sup> #67413

Over 91 million business and residential listings, more than any other product in its price range. Reverse indexing finds a residence or business listings from just an address, phone number or business type. Narrow name or business type searches by city, state, street, ZIP and/or area code.

## ScanMaker IHR

- 2400 dpi resolution (interpolated) - true 600x1200 optical resolution
- Maximum document size 8.5"x13.5"
- Includes a full version of Adobe™ Photoshop 3.0 and OmniPage Direct
- Apple® ColorSync® compatible
- Full grayscale scanning capability
- Optional transparency adapter and automatic document feeder



\$1067<sup>99</sup>  
#69352

## ScanMaker IISP



The new single-pass ScanMaker IISP Color Flatbed Scanner with DCR™, the most accurate color system calibration available for the desktop, is another price/performance breakthrough from Microtek. Accurate color calibration for more vibrant, saturated and true color which used to be only available at a premium price on high-end scanning equipment. It is also Apple® ColorSync® compatible. Comes complete with Image Editing Software OmniPage Direct.

\$519<sup>99</sup>  
#69355

## MICROTEK

### ScanMaker II ScanMaker III

This scanner uses a three-pass scanning method to capture full 24-bit color or 256 shades of grey. Features 300 dpi horizontal, 600 dpi vertical resolution, with a maximum of 1200dpi x 1200dpi through interpolation. Includes Image Editing Software, OmniPage Direct and scan module with Automatic Contrast Control and Display Matching System, making it a snap to get great looking images on the first try.

\$469<sup>99</sup>  
#69357

The ScanMaker III scans in 36-bit color, capturing images of up to 12 bits per RGB color channel. Scans up to 2400dpi for smoother, more precise color gradations, detailed highlights and rich shadows, accurate midtones and a full photographic dynamic range up to 3.4. Includes FULL version of Adobe™ Photoshop.

\$2487<sup>99</sup>  
#64511

# EXTREMELY SHOCK-RESISTANT



The Nomai Family of SyQuest™ compatible **REMOVABLE CARTRIDGES** provides the optimum in data storage performance. Nomai cartridges are the most shock-resistant cartridges available on the market today. In a recent MacUser review, Senior Editor Mark Frost said, "We mailed 'em, cooked 'em, magnetized 'em and dropped 'em - and these removable cartridges came back for more... None of the cartridges suffered any data loss!" This **TREMENDOUS SHOCK-RESISTANCE** is obtained by DLC (Diamond Like Catalog). DLC protects against airborne particles which results in a long-life cartridge you can trust.

**PREFORMATTED** and backed by a **5 YEAR WARRANTY**, Nomai offers unparalleled dependability and performance at an **UNBEATABLE PRICE**.

44MB  
\$42<sup>99</sup>  
#66229

88MB  
\$48<sup>99</sup>  
#66230



To Order, Call Toll Free

PRIORITY CODE: D552MG14

# 1 • 800 • 222 • 2808

## MacMall Now Open 24 Hours!!







To Order, Call Toll Free

PRIORITY CODE:  
D552MG14

1 • 800 • 222 • 2808

Call today  
for your  
**FREE**  
Catalog!!

Fax: 310-222-5800

Customer Service: 800-560-6800

International Orders: 310-787-4500

Mail: MacMall Order Dept., 2645 Maricopa St., Torrance, CA 90503-5144

**FedEx**  
Federal Express

Overnight Delivery  
by 10:30am!  
**\$3 Per Order\***

Limited to in-stock orders placed before 8pm (EST) not requiring configuration and delivery by FedEx to destinations within the contiguous U.S. Next day delivery may not be available in certain rural areas. Limit 10 lbs.

## Supra Express 144 Plus

### 14.4 Fax/Modem for Mac™

The Supra Express 144 Plus blasts ahead of the competition with a winning combination of high-speed, dependability and ease-of-use, all at astonishing low price! This affordable, high quality fax modem offers cost-conscious Mac™ users 14,400 bps fax and data speeds in an attractive, compact external case. It features the SupraExpress LED display, MNP 2-5 and V.42bis hardware-based compression. Includes: FAXcilitate® fax software and MicroPhone® data software, all cables, easy-to-read manuals and a 5 Year Limited warranty.



**\$99<sup>99</sup>** #67021

## SupraFAXModem™ 288

These fast 28.8 modems offer 28,800 bps fax/data speeds with V.34 and a maximum throughput of 115,200 bps and fax speeds of 14,400. Receives fax and voice calls on one line. Displays info on incoming calls. Includes Flash ROM for end-user upgrading, FAXcilitate 1.7 Microphone™ LT and CompuServe Information Manager software, CCL script for ARA, manuals and cables. Five year warranty.



### Supra 14.4 LC Fax Modem

14,400 bps fax/data speeds with a maximum throughput of 57,600 bps. Caller ID. Includes: FAXcilitate 1.6, Microphone™ LT and CompuServe Information Manager software, CCL scripts for ARA, manuals and cables. Five year warranty.

**\$239<sup>99</sup>** #67622

**\$138<sup>99</sup>** #61560

## Record Live Video to Your VCR

### WTI-VideoMax™

Converter for Macintosh® II RGB to NTSC/PAL output

WTI-VideoMax is an inexpensive stand alone solution for recording live video from your Macintosh® II computer to video tape. It connects directly to the output of your Apple® (or compatible) display card. WTI-VideoMax has two outputs one which gives you the NTSC or PAL compatible video signal and another which connects to your existing display monitor.

**\$79<sup>99</sup>** #67579



## JFK Assassination CD

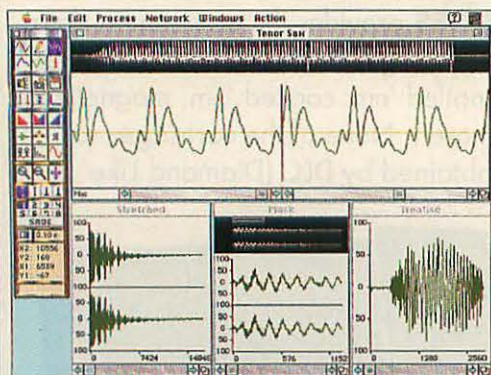
"Best Multimedia Title of the Year"

- Electronic Entertainment

Experience for yourself one of the most shocking events of the 20th century. Relive the wrenching drama of November 1963, the events that foreshadowed it, and the historic days that followed. Full-motion video clips including eyewitness films show you all of it. You even get the full text of Jim Morris' book "Crossfire" and The Warren Commission Report. Medio presents facts. Judgements are left to you as you become investigator, analyst, judge, jury - an eyewitness to history. You decide what really happened.



**\$36<sup>99</sup>** #69309



## ALCHEMY

### The Premier sample editor...

Alchemy is the world's most powerful Macintosh® 16-bit stereo sample editor. Alchemy 3.0 is the fastest and most elegant way to retrieve, record, play back, edit, and store sampled sounds, period. Alchemy 3.0's Distributed Audio Network (DAN) enables you to archive the sounds for several different sampling devices and digital audio boards in a single, convenient sound library. Features like (UST) Unified Sampling Technology™, Fast Fourier Transform analysis and resynthesis, true stereo editing, automated fades and crossfades, digital delays, Digidesign® and Sound Manager 3.0 support, and high-resolution sample rate conversion, combine to make Alchemy 3.0 an indispensable tool for any sound designer.

- Flexible waveform display with multiple levels of zoom.
- Loop Splice Mode provides sample-accurate high-resolution display and editing of the critical loop splice point. Automatic zero-crossing detection simplifies looping decisions.
- Open an unlimited number of waveform windows.
- Eight user-definable views for each sound file with independent zoom levels and display areas.

**\$349<sup>99</sup>** #69318



## Fastest Delivery Service Guarantee

"We deliver your order by 10:30am  
THE NEXT DAY or pay for your shipping"\*

\*Limited to in-stock orders placed before 8pm (EST) not requiring configuration and delivered to destinations within the contiguous U.S. by FedEx®. Next day not available to certain rural areas. Limit 10 lbs.

**FedEx**  
Federal Express

MacMall has  
all the  
latest  
**PowerMac™**  
Native  
Software!!

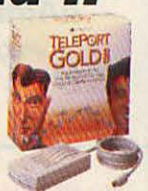


## TelePort Gold II

- 14,400 bps Fax/Data Modem
- Includes GlobalFax software and on-line service connection files

by Global Village

**\$129<sup>99</sup>** #66954

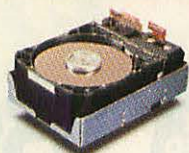


**OUR POLICIES** \*\$3.00 FEDEX® offer applies to continental U.S. only, orders over 10lbs incur extra charges. Call customer service at 800-560-6800 or tech support at 800-760-0300 if you have a question or problem with any order. No packages will be accepted with out a Return Authorization Number form Customer Service. All returned products must be in original condition with all packaging and registration card, within 30 days of original invoice date. For International orders, please include a photocopy of the front and back of your credit card. Minimum International order is \$50 Canada, \$100 Foreign; \$20 in U.S.A. Apple and Hewlett Packard products cannot be shipped outside of the U.S.A. International orders shipped via DHL, FOB Los Angeles. Apple, the Apple logo and Macintosh are registered trademarks of Apple Computer, Inc. While we do our best to check for mistakes, occasionally they do occur. Prices and specs subject to change without notice. ©1995 MacMall

**TelePort Platinum**  
28.8 v.34 Data  
Fax Modem **\$229<sup>99</sup>** #69366







### HARD DRIVES

The Seagate Elite 9 External  
only \$3195.

### FUJITSU

#### 5 YEAR WARRANTY

CAPACITY	SIZE	ACCESS	INTERNAL	EXTERNAL
530MB**	3.5"	13MS	\$ 279	\$ 339

### Seagate

#### 5 YEAR WARRANTY

CAPACITY	SIZE	ACCESS	MODEL	EXTERNAL
1.2GIG	3.5"	9MS	ST31230N	\$ 645
2.5GIG	3.5"	8MS	Barracuda 2 LP	\$ 1165
2.5GIG	3.5"	8MS	Barracuda 2 WIDE	\$ 1299
2.4GIG	3.5"	9MS	ST12450W Dual Head	\$ 1629
4.1GIG	3.5"	8MS	Barracuda 4	\$ 1995
4.1GIG	3.5"	8MS	Barracuda 4 wide	\$ 2195
9.0GIG	5.25"	11MS	Elite 9	\$ 3195

### CONNER

#### 5 YEAR WARRANTY

CAPACITY	SIZE	ACCESS	MODEL	EXTERNAL
545MB**	3.5"	12MS	CFA540S	\$ 364
2.1GIG	3.5"	9MS	CFP2105S	\$ 995
2.1GIG	3.5"	8MS	CFP2107S	\$ 1245
4.2GIG	3.5"	9MS	CFP4207S	\$ 1755

### Quantum

#### 5 YEAR WARRANTY

CAPACITY	SIZE	ACCESS	MODEL	EXTERNAL
1.0GIG	3.5"	9MS	E1080S	\$ 645
2.2GIG	3.5"	9.5MS	E2160S	\$ 1099
4.3GIG	3.5"	9MS	4280S	\$ 2095

### HITACHI

CAPACITY	SIZE	ACCESS	INTERNAL	EXTERNAL
530MB**	3.5" 6300RPM	13MS	\$ 585	\$ 645

### POWERBOOK-CORNER

240MB	14MS internal	\$315
340MB	14MS internal	\$385
514MB	14MS internal	\$445
Datasonix Mobile Storage		\$649

### CD ROMS

Sony cdu-55s	\$ 235
Toshiba 4101	\$ 285
Toshiba 3501 4 Speed	\$ 395
Yamaha 4 speed recorder	\$ 4495
Three multimode recording options: disc-at-once, track-at-once and multisessions. This 5 1/4" half-height will meet your most demanding needs.	
Ricoh CD-Recorder Dual Speed	\$ 1575
1.2MB Buffer so you won't get data transfer interruptions. And 680MB media 10 pack for only \$99. Just set the recording format, select the files, and hit create.	

<b>SyQuest</b>		
88MB	SQ5110C	\$365
200MB	SQ5200	\$485
270MB	SQ3270	\$485

### MONITORS

Sony are both PC and Mac compatible

Sony GDM-15SF1 15"	\$435
Sony CPD-17SF1 17"	\$889
Sony GDM-20SE1 20"	\$1899

### SCANNERS

MUSTEK 1200dpi Color (2400 with interpolation) including transparency unit and software. Everything included for Mac, Dos, Windows	\$889
MUSTEK 600dpi Color 8.5"x14"	\$499



### OPTICAL DRIVES

230 MB EXTERNAL \$699

INCLUDES ONE CARTRIDGE

#### 1 YEAR WARRANTY

CAPACITY	MODEL	ACCESS	EXTERNAL
230MB	Fujitsu	30MS	\$ 699
230MB	Olympus	28MS 4200 RPM	\$ 799
1.3GB	NEC	32MS	\$ 1899
1.3GB	Sony	40MS	\$ 1999
1.3GB	Ricoh Turbo	19MS	\$ 2175



### TAPE BACK-UP

DC DAT 2GIG External  
ONLY \$ 769

INCLUDES TAPE + RETROSPECT SOFTWARE

#### 2 YEAR WARRANTY

CAPACITY	MODEL	MEDIA	INTERNAL	EXTERNAL
250MB	Tandberg TDC 3660	DC6250	\$ 445	\$ 499
1.3-2GIG	DC DAT	4MM	\$ 709	\$ 769
1.3-4GIG	DC DOUBLE DAT	4MM	\$ 839	\$ 899
4.0-8GIG	Connor 4326 DDS-2	4MM	\$ 1089	\$ 1149
4.0GIG	Sony 5200 DDS-2	4MM	\$ 939	\$ 999
4.0-8GIG	Sony 5000 DDS-2	4MM	\$ 969	\$ 1029
1.3-10GIG	Exabyte 8505	8MM	\$ 2179	\$ 2259
7.0-14GIG	Exabyte 8505XL	8MM	\$ 2185	\$ 2245
10-20GIG	Quantum DLT (DIGITAL LINEAR)	1/2	\$ 3575	\$ 3675

INCREDIBLE 2.5MB/SEC TRANSFER RATE

Our Top rated RAID Systems include a Nubus accelerator card, Remus RAID software, and all cabling and termination.

### RAID SYSTEMS

FROM 1 TO 84 GIG

"This Array is the one to beat." - Ken Grey  
Writer for WIRED, Computer User, Movie Maker, Computer Video, and Digital Video magazines.



2.0GIG RAID Level 0. Perfect for highspeed requirements.	\$ 2299
This Array is the one to beat!! 4.0 GIG Barracuda 2 Wide RAID.	\$ 3599
6.0 GIG Fast and Wide. Fastest RAID for Video Vision Users.	\$ 5099

### MEDIA

128MB Optical	\$ 25	90M Tape	\$ 12
230MB Optical	\$ 35	112M Tape	\$ 15
650GIG Optical	\$ 79	120M Tape	\$ 20
1.3GIG Optical	\$ 99	CD ROM 10 Pack	\$ 99
SYQUEST 44MB	\$ 42	SYQUEST 88MB	\$ 48
SYQUEST 200MB	\$ 76	SYQUEST 270MB	\$ 64





# NEW LOWER PRICES

## CLUBMAC QUAD-SPEED CD-ROM DRIVE

### FEATURES

- Quad-Speed CD-ROM Reader
- 600KB/sec data transfer rate
- 220ms average access time
- 256K data buffer
- Includes CD Caddy
- LED light, headphone jack and RCA jacks
- Kodak PhotoCD (Multisession) compliant
- CharMac's CD AutoCache driver software
- 100,000 hours MTBF
- ONE Year Warranty

**ClubMac**  
NEW PRODUCT



**4X**



**\$299**

C109 9502



### CLASSIC CD-ROM BUNDLE (4 Titles/3 CDs)

**\$89**

- Greiner 1995 Multimedia Encyclopedia
- U.S. Atlas v5.0
- World Atlas v4.0
- San Diego Zoo Animals
- QuickShot speakers

C109 1008

### REFERENCE CD-ROM BUNDLE (3 Titles/3 CDs)

**\$69**

- Guinness Disc of Records
- Mayo Clinic
- Money in the 90's
- QuickShot speakers

C109 1010

\* with any CD-ROM Drive purchase

### ENTERTAINMENT CD-ROM BUNDLE (7 Titles/3 CDs)

**\$79**

- Wordtris
- US Atlas
- Grammy's Awards
- Space Shuttle
- Mario's Sports
- Chessmaster 3000
- Verbs (The Car)

C109 1009

### CHILDREN CD-ROM BUNDLE (3 Titles/3 CDs)

**\$59**

- Mighty Morphin Power Rangers
- Mario's Time Machine Deluxe
- Harry's Story Disc and Coloring Book
- QuickShot Speakers

C109 1011

## CLUBMAC DOUBLE-SPEED CD-ROM DRIVE

### FEATURES

- Double-Speed CD-ROM Reader
- 300KB/sec data transfer rate
- 250ms average access time
- 256K data buffer
- Caddy-less design
- LED light, headphone jack and RCA jacks
- Kodak PhotoCD (Multisession) compliant
- Includes CharMac's CD AutoCache driver software
- 90,000 hours MTBF
- ONE Year Warranty

**NEW FASTER MODEL**

**2X**



**NO CADDY NEEDED**

**\$159**

C109 9500

## ClubMac 3.5" 270MB Removable

### INCLUDES FREE CARTRIDGE

The ClubMac 3.5" 270MB Removable features a 13.5ms average seek time, 3,600 RPM rotational speed, data transfer rate up to 4MB/sec (sync), SCSI-2 interface and backward compatible with 105MB cartridges



**\$479**

C109 1004



### FEATURING



**SyQuest**  
REMOVABLE  
TECHNOLOGY

## ClubMac 5.25" 200MB Removable

### INCLUDES FREE CARTRIDGE

The ClubMac 5.25" 200MB Removable features 10ms average seek time, 3,220 RPM rotational speed and data transfer rate up to 4 MB/sec (sync)

NOW SHIPPING WITH

**ACTIVE TERMINATION**



**\$478**

C109 1003



## GENUINE SYQUEST CARTRIDGES

Part No.	Media	Qty 1	Qty 10	Qty 20
S198 1010	44MB	\$43ea	\$42ea	\$41ea
S198 1011	88MB	\$48ea	\$47ea	\$46ea
S198 1012	200MB	\$76ea	\$74ea	\$72ea
S198 1013	105MB	\$55ea	\$53ea	\$51ea
S198 1014	270MB	\$62ea	\$61ea	\$60ea

**5 YEAR**  
Warranty

**NEW LOW PRICES**

ClubMac SyQuest drives include a TWO Year Warranty, ONE FREE formatted cartridge, SCSI Director Formatting Utility, power cable, and documentation. SyQuest cartridges include a FIVE Year Warranty. (\*Warranty after the first year is handled by SyQuest)

## ClubMac 5.25" 88MB Removable

### INCLUDES FREE CARTRIDGE

The ClubMac 5.25" 88MB Removable features 20ms average seek time, 3,220 RPM rotational speed and 100,000 hours MTBF

NOW SHIPPING WITH

**ACTIVE TERMINATION**



**\$349**

C109 1002



# Quantum

### DAYTONA SERIES

The Quantum Daytona Drives are high-capacity 2.5-inch hard drives that provide unmatched mass storage solutions for the Apple PowerBooks.

### 2.5" PowerBook Drives

Capacity	Access	Internal	External
256MB	17ms	\$259	\$379
341MB	17ms	\$325	\$445
514MB	17ms	\$439	\$559



**\$439**  
514MB Int.

### MAVERICK SERIES

Capacity Access Internal External

3.5" Low Profile

540MB 14ms \$245 \$305

### LIGHTNING SERIES

Capacity Access Internal External

3.5" Low Profile

365MB 11ms \$199 \$259

540MB 11ms \$265 \$325

730MB 11ms \$285 \$345

Quantum Daytona, Maverick, Lightning, Empire, Grand Prix, and Atlas series include a TWO Year Warranty. Quantum Daytona series include a ONE Year Warranty.

### EMPIRE SERIES

Capacity Access Internal External

3.5" Low Profile

1080MB 9.5ms \$599 \$659

3.5" Half Height

2100MB 9.5ms \$989 \$1049



**\$659**  
1080MB Ext.

### GRAND PRIX/ATLAS

Capacity Access Internal External

3.5" Half Height

2100MB 8.6ms \$1029 \$1089

4280MB 8.6ms \$1629 \$1689



**\$1689**  
4280MB Ext.

# Seagate

**5 YEAR**  
Warranty

SHIPPING WITH  
**ACTIVE TERMINATION**

Unformatted Capacity	Model	Description	Access Time	Actual Capacity	Internal	External
<b>3.5" Half Height &amp; Low Profile</b>						
2.4GB	ST32430N	Hawk 2 LP	9ms	2000MB	\$999	\$1059
4.3GB	ST15230N	Hawk 4	9ms	4000MB	\$1559	\$1619
2.5GB	ST32550N	Barracuda 2 LP	8ms	2050MB	\$1099	\$1159
4.3GB	ST15150N	Barracuda 4	8.5ms	4000MB	\$1839	\$1899
<b>5.25" Full Height</b>						
9.1GB	ST410800N	Elite-9	11ms	8600MB	\$3299	\$3399

## CLUBMAC TAPE BACKUP DRIVES

The ClubMac 2.0GB DAT drive features 20sec access time, up to 266KB/sec data transfer rate, SCSI-1/SCSI-2 and 60,000 hrs MTBF.



**\$729**

SHIPPING WITH **ACTIVE TERMINATION**

C109 5011 ClubMac 2.0GB DAT

C109 5010 ClubMac 4-8GB DAT (DD5-2) \$949

ClubMac DAT drives include a TWO Year Warranty, Retrospect v2.1 Backup Software, ONE 90m DAT tape (ONE 120 DAT tape for 4-8GB).

## CLUBMAC AWARD-WINNING OPTICAL DRIVES



**ClubMac 5.25" Sharp 1.3GB**

- 39ms avg. seek time
- 3,000 RPM rotational speed
- 80,000 hrs MTBF

**\$1499** C109 4750

### ClubMac 3.5" Olympus 230MB

- 28ms avg. seek time
- 4,200 RPM rotational speed
- 50,000 hrs MTBF



**\$699** C109 5021

ClubMac OPTICAL drives include a ONE Year Warranty, FREE formatted optical disk & SCSI Director Formatting Software.





**New ClubMac Catalog is now Available!**  
**Call 1-800-258-2622 and ask your salesperson**  
**for your FREE ClubMac Catalog subscription.**



Authorized  
Catalog Reseller

## Monitors, Graphic Cards, Multimedia

# NEC

### 15" MultiSync XV15

- Perfect entry level business, small office/home office, home education/entertainment
- 15" diagonal flat square technology
- FullScan capability for edge-to-edge images
- Mac and PC compatible
- Fine 0.28mm dot pitch
- 640 x 480 up to 1024 x 768 resolution



<b>\$445</b>	<b>14" MultiSync 2V</b> (N026 1016)	<b>\$335</b>
	<b>15" MultiSync XV15</b> (N026 1015)	<b>\$445</b>
	<b>15" MultiSync XE15</b> (N026 1006) / <b>XP15</b> (N026 1005)	<b>\$569 / 659</b>
	<b>17" MultiSync XE17</b> (N026 1007) / <b>XP17</b> (N026 1009)	<b>\$999 / 1225</b>
	<b>21" MultiSync XE21</b> (N026 1010) / <b>XP21</b> (N026 1011)	<b>\$1989 / 2435</b>



### IntelliColor Display/20e

The Radius IntelliColor Display/20e is part of the next generation in professional two-page color displays. It delivers unrivaled command of your desktop, from on-the-fly resolution switching to state-of-the-art color temperature control. Combined with Radius' IntelliColor software, it allows you to emulate 3 lighting conditions and user-adjustable color temperature, so you get more accurate color representation.

R016 1013	<b>PressView 21T Display System</b> (21" 2102) 21" Trinitron, 640 x 480 to 1600 x 1200	<b>\$3119</b>
R016 1016	<b>SuperMatch 21T XL Trinitron</b> (S202102) 21" Trinitron, 1600 x 1200	<b>\$2139</b>
R016 1009	<b>IntelliColor Display/20e</b> (0461) 20" Trinitron, 640 x 480 to 1600 x 1200	<b>\$1979</b>
R016 1007	<b>PrecisionColor Display/17</b> (0340) 17" Trinitron, 640 x 480 to 1600 x 1200	<b>\$989</b>
R016 1015	<b>SuperMatch 17-T PRO</b> (S101702) 17" Trinitron, 1360 x 1024	<b>\$829</b>

### VideoVision Studio 2.0

With JPEG hardware compression and decompression for full-screen, full-motion recording and playback from a hard disk, VideoVision Studio combines the power and flexibility of the Macintosh with the ease and transportability of video tape.

R013 1018	<b>VideoVision Studio 2.0</b> (0500) NEW and IMPROVED, compatible with the PowerMac 8100	<b>\$3779</b>
R013 1020	<b>VideoVision Studio 2.0 Upgrade</b> (0505) JPEG digital record	<b>\$1789</b>
R013 1026	<b>Spigot Power AV</b> (071630) captures full-screen 24-bit color video up to 30 frames/60 fields per sec	<b>\$759</b>



**NEW PRODUCT**  
**FREE**  
TeleCaption software

## radius

**Thunder Series GRAPHIC ACCELERATORS**

**Super Resolution at Earth-Shaking Speed.**

**Thunder Series Cards**  
Blow the doors off Power Mac



Three Thunder IV GX cards extend the 24-bit resolution of the PowerMac's built-in video. Accelerated 24-bit color, built-in Photoshop acceleration, CMYK acceleration, hot-key resolution switching, pan and zoom, color composer and 10-bit DAC add up to make these cards the number one choice for image processing, compositing and illustration.

**as low as \$1949**

R013 1059	<b>Thunder IV GX-1600</b>	<b>\$2879</b>
R013 1060	<b>Thunder IV GX-1360</b>	<b>\$2339</b>
R013 1061	<b>Thunder IV GX-1152</b>	<b>\$1949</b>
R013 1062	<b>Thunder/24 GT</b>	<b>\$1359</b>
R013 1010	<b>PrecisionColor Pro 24XX</b>	<b>\$749</b>
R013 1012	<b>PrecisionColor Pro 24XP</b>	<b>\$279</b>

\*Modify your image display without affecting the image file. For a limited time, FREE ColorComposer software is included with each Thunder Series card. Adjust what you see on your monitor to more closely match the output of your printer.



# EPSON

## Stylus COLOR Inkjet Printer

Now you can print in vivid color with clarity never before possible in a personal color printer. At 360 dpi resolution blocks are blacker and at 720/360 dpi the color output is the sharpest available.

- Incredible 720 dpi color printing, optimized with special coated paper
- 360 dpi black print resolution
- Prints up to 16 million colors
- Serial interface
- Includes Mac driver software and a TWO Year Warranty



**\$529**

**NOW MAC COMPATIBLE**

# NEC



**BEST BUY**

### NEC Silentwriter Model 640

- 6ppm Print Speed
- 300 dpi print resolution
- 35 True Type fonts
- 3MB RAM standard
- AppleTalk Interface
- Adobe PostScript Level 2 interpreter
- Limited TWO-Year Overnight Replacement Warranty

**\$699**



**\$359**

**VISIONEER**

**PaperPort.**  
The fastest way  
to get paper into your Mac.

The first truly simple, super-small input device that converts your paper documents into electronic ones. With PaperPort's direct links to word processors, OCR software (included!), printers and fax modems, you can file, edit, annotate, print and send your documents directly to others. (V025 1002)

# EPSON

**Epson ES-1200 Pro Mac Scanning System**

**High detail 4800 dpi, 30-bit color scanning made affordable.**

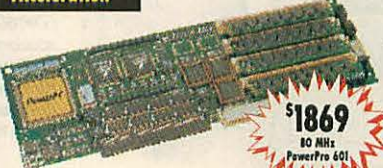
- 600 x 1200 dpi scanning resolution (up to 4800 dpi via interpolation)
- Epson's TruePass scanning technology
- Scans over ONE BILLION colors
- 8.5" x 11.67" scanning area
- Built-in image processing features
- Increased image quality with 30-bit color scanning

**\$1269**



E045 1003	<b>Epson ES-1200C Pro-MAC</b>	<b>\$1269</b>
E045 1004	<b>Transparency Unit</b>	<b>\$749</b>
E045 1008	<b>Automatic Document Feeder</b>	<b>\$465</b>

## Acceleration



**\$1869**  
80 MHz  
PowerPro 601

D040 1039	<b>66 MHz Turbo 601 for Mac IId</b> (C01213)	<b>\$1179</b>
D040 1035	<b>80 MHz PowerPro 601</b> (with Cache)	<b>\$1869</b>
D040 1043	<b>100 MHz PowerPro 601</b> (with Cache)	<b>\$2159</b>

**DAYSTAR DIGITAL**

### Turbo 040 Accelerator

D040 1018	<b>40 MHz Turbo 040 w/128K cache</b>	<b>\$769</b>
-----------	--------------------------------------	--------------

Optional adapter required for non-Mac IIx, IIfx, IIfx Performa 600



**\$769**  
40MHz Turbo  
w/128K cache

**POWERPC ACCELERATORS ARE HERE!!**

## Networking

**ASANTÉ**

### Mac Con LC-10T III

(A120 1026)  
Mac Con LC-10T III is a great low cost 10BaseT solution for LCs Quadras 605s, 630s and many Performa models



**\$59**

**SPECIAL BUY!**  
LIMITED QUANTITIES AVAILABLE

A120 1026	<b>10BaseT, FPU socket (MacLC-10TIII)</b>	<b>\$59</b>
A120 1034	<b>NetExtender - AUII Hub with 4 RJ45 Ports, attached AUII cable (NETEXTFN-AUII)</b>	<b>\$75</b>
A120 1032	<b>Micro AsantéPrint, 10BT (AP10T)</b>	<b>\$285</b>
A120 1033	<b>Micro AsantéPrint, Thk/Thin/10BT (AP3)</b>	<b>\$309</b>
A120 1010	<b>10BaseT FriendlyNet Media Adapter (FN10TA)</b>	<b>\$49</b>
A120 1025	<b>Mac II/Perf 600, NuBus, Thk/Thin (MCINB-TN)</b>	<b>\$95</b>
A120 1023	<b>Mac II/Perf 600, NuBus, Thk/10BT (MCINB-10T)</b>	<b>\$109</b>
A120 1022	<b>Mac LC/Q6xx/Clr Classic, Thin, FPU (MCLC-TN)</b>	<b>\$109</b>
A120 1037	<b>Mac LC/Q6xx/Clr Classic, 10BT, FPU (MCLC-10T)</b>	<b>\$89</b>
A120 1034	<b>AUII Hub w/4 RJ45 ports (NETEXT-FN)</b>	<b>\$129</b>

## Modems

**SupraFAXModem**

**\$225**



S140 1036	<b>SupraExpress 14.4 Plus</b>	<b>\$99</b>
S140 1037	<b>SupraFAXModem 28.8 MC V34</b>	<b>\$225</b>
S140 1038	<b>SupraFAXModem 28.8 PB VFast Class</b>	<b>\$299</b>

Supra Modems include a FIVE Year Warranty.

## CALL FOR FREE CATALOG

Warranties: All items manufactured by ClubMac are warranted to ClubMac for warranty repair. All other items carry manufacturer's warranty. Money Back Guarantee: All products manufactured by ClubMac carry a 30 day money back guarantee. ClubMac extends all other manufacturers' return policies to its customers. Non-ClubMac products carry 30 day money back guarantee when specified. Returns: Call for \$24.95 member! Any product that is returned WITHOUT an RMA number will be refused. All product information and prices are subject to change without notice. Not responsible for typographical errors.



**NO SURCHARGE!**

**Robotics**  
The Intelligent Choice in Data Communications

### Sportster 28.8 Mac&Fax



**TRUE V.34 with VFC at 28.8 BPS**

U020 1003	<b>Sportster 14.4 Mac&amp;Fax</b>	<b>\$129</b>
U020 1007	<b>Sportster 28.8 Mac&amp;Fax V.34 and V-Fast Class</b>	<b>\$249</b>



Authorized  
Catalog Reseller

**NEW SALES HOURS**  
M-F: 5:30am-7:00pm PST  
SAT: 7:30am-4:00pm PST

# ClubMac

**1-800-258-2622**

Info (714)768-8130 • Tech Support (714)768-1490  
Fax (714)768-9354 • 7 Hammond, Irvine, CA 92718



# We'll Give You Expert Advice, But, If You'd Rather



Power Macintosh™ Systems

Number One Mac  
Systems Mail Order  
Reseller 5 Years Running



**\$4399**

Power Macintosh 8100/100AV  
with CD ROM Drive  
16MB RAM, 1 GIG HD,  
includes Ethernet & FPU.

• Add RadiusThunder IV  
GX+1600 24-bit graphics  
accelerator w/ DSP's, Radius  
21•TXL Display, Extended  
Keyboard & System 7.5  
Complete System Price \$9689  
Lease for \$344 / month\*

Whether you need a system for desktop publishing, professional pre-press applications, digital video production or simply business productivity – Express Direct can custom configure a Mac System that's right for your specific job and right for your budget. And remember, all Macs aren't created equal! At Express Direct we do more than take orders and ship boxes. We install the memory, video card and system software. Then we test every System – so all you need to do is plug it in! And only Express Direct gives you Toll-Free Technical Support with every Mac!



**\$869**

The Umax UC1260 offers incredibly accurate 1200 dpi scanning with enhanced resolution up to 9600 dpi. Shown with optional transparency unit.

**UMAX**

UC 1200	1200 to 9600 dpi, 24-bit color	\$869
PowerLook	1200 to 9600 dpi, 30-bit color	\$2489
PowerLook	with transparency adapter	\$2969
NEW Vista 86	600 to 4800 dpi, 1 pass	\$679
NEW Vista 88	600 to 6400 dpi, 1 pass	\$779

Pick Your Own Software Bundle  
Available only with scanner purchase.

Pro Bundle	Full Photoshop and Kai's Power Tools	\$229
LE Bundle	Photoshop LE and OmniPage Direct OCR	\$109



**\$2989**

The 2.0 Gb SledgeHammer 2000 FME Wide Disk Array optimizes digital video recording and playback.

**FWB**  
THE REFORMAT

SledgeHammer 2000FME	\$2989
2GB Wide disk array, includes SCSI JackHammer	
SledgeHammer 4100FME	\$4729
4GB Wide disk array, includes SCSI JackHammer	
HammerDisk 1300FME	\$3079
1.3GB Optical Drive	
HammerDisk PE240	\$1029
230MB Optical Drive	
JackHammer SCSI Accelerator	\$629
HammerTape & DAT Drives	CALL



**\$5799**

The SelectPress 1200 prints full bleed spreads and tabloid size pages at camera-ready 1200 dpi on 12"x18" paper. With Ethernet and 160 MB internal hard drive.

**GCC**  
TECHNOLOGIES

SelectPress 1200	\$5799
12"x18", 1200 dpi w/ 160MB HD, PostScript level 2	
SelectPress 600Pro	\$4499
11"x17", 600 dpi w/ 16MB RAM, 160MB HD	
SelectPress 600	\$3599
11"x17", 600 dpi, PostScript level 2	
Elite 600	\$1399
600 dpi w/ 4MB RAM, 10ppm, optional Ethernet	
WideWriter 360	\$1469
Prints up to 17"x22", QuickDraw at 360 dpi, Free ATM	

We stock a complete line of quality products from all of the above manufacturers & more.

**1 • 800 • 765 • 0020**

Express Hours (CST) M-Th 8am-7pm, Fri 8am-6pm • 24hr Fax • Tech Support Hotline: 1-800-236-3059

Order  
Direct!

Apple, the Apple logo, Macintosh, Macintosh Quadra and Power Macintosh are trademarks of Apple Computer, Inc. Prices are subject to change without notice. A 2% surcharge applies to American Express purchases. All returned orders may be subject to a 15% restocking fee plus return shipping. Call for RMA before returning. Software, unless defective, cannot be returned after it has been opened. All warranties on Macintosh or Apple brand products sold by Express Direct will be honored by Express Direct or its authorized agents. All other manufacturers' warranties still apply. \* Extended Service Plans are optional and available for an additional cost. Call for complete details. \* Lease price based on 36 month lease with \$100 purchase option. Call for details.



# Outstanding Service, and Support.

## Gamble...Turn the Page



### We'll give it to you straight.

When it comes to product knowledge and understanding the needs of graphic professionals – **nobody even comes close to Express Direct.** Not the other mail-order companies, not the superstores, not even your local dealer.

When you call us – **you'll talk with an expert.** Someone who's done their homework, knows the product, knows what they're talking about. Not an order-taker, like you get with the other mail-order companies.

We carry only top-notch products from the industry's best manufacturers. No garbage. You demand quality and so do we. What's more, our strict criteria for selecting products means we always get the lowest price – directly from the manufacturer. So **nobody can give you a better value** than Express Direct.

But that's just the beginning. With customer service and technical support that's the best in the industry, we make it our business to take care of you. All this is just a free phone call away. So, call Express Direct today. **You're going to love working with us!**

# express direct

2720 N. Paulina Ave.  
Chicago, IL 60614

**Call to receive a FREE catalog!**

**CALL b**  
**\$3099.**



*New Radius Thunder IV GX1600 with built-in DSP's and award winning 21"TXL Display.*

**radius**

21"TXL Display 21", 1600x1200 dpi	CALL
PrecisionColor 17" 17" Energy Star	\$1039
PressView 21T 21", 1600x1200 dpi, includes hood and calibrator	\$3299
Thunder IV GX1600	\$3099
Up to 1600x1200 dpi CMYK accelerator w/ 4 built-in DSP's to accelerate Photoshop.	
Thunder IV GX1152	\$2099
Same features as GX1600 but up to 1152x870 dpi	
PhotoEngine	\$649
4-Digital Digital Processors (DSP's) for blazing Photoshop speed.	

**\$8799**



*New VideoVision ProPak -- Now PowerPC-ready. Industry-leading digital video solution combines VideoVision Studio 2.0 with the Studio Array.*

**radius**

VideoVision ProPak	\$8799
Combines VideoVision Studio 2.0 w/ Studio Array	
VideoVision Studio 2.0	CALL
Professional digital video recording includes Premiere and VideoFusion	
StudioVision Studio Array	\$5299
4GB disk array optimizes performance for VideoVision	
SpigotPower AV	\$849
Full motion, full screen video for AV Macs	

We're Digital Video experts! Whether you're a pro or just starting out, let us help you do it right.



• Unlimited toll-free technical support



• Full warranty coverage



• Authorized service & sales



• Flexible payment & leasing terms for those who qualify



International Orders  
Shipped Daily  
Fax: 312.244.3081  
Ph.: 312.244.3000



# MAC BARGAIN\$

**Buy with Confidence from MAC BARGAIN\$.**

- A leading direct marketer of Mac products
- Over 2,500 products in stock
- Most orders ship the next day
- Our goal is 100% customer satisfaction

*Great Deals!*

**Only \$557**

**Sony Portable MD Data Drive**

- Battery-powered drive is ideal for mobile computing
- Provides up to 140MB of data storage on a single 2.5" magneto-optical disc
- Capable of playing audio MiniDiscs

Sony #02139



**15" \$537 #19717**

**17" \$997 #19717**

**21" \$1996 #19719**



**NEC MultiSync XE Monitor**

- High quality, flat square technology CRT
- Superior focus across the entire screen
- Ample room to display large screen business and multimedia applications

NEC #19717, #19718, #19719



**Nikon CoolPrint Digital Printer**

- Get photo-quality digital prints
- One print per minute printing speed
- 488x637 dpi resolution in 16.7 million colors
- Everything you need to get set up and running

Nikon #02136

**Only \$1575**

Abacus Concepts		
00032	Statview 4.0	\$445.98
ACI US		
99432	4D Chart 1.0	\$214.98
96355	4D First 1.2	\$94.98
99044	4D Server 1.2 Version Upgrade	\$149.98
02648	4th Dimension 3.2	\$598.98
99043	4th Dimension 3.2 Version Upgrade	\$58.98
Adobe		
18894	Acrobat 2.0 for WorkGroups	\$999.00
93952	Acrobat 2.0	\$122.98
95323	Acrobat Pro 2.0	\$376.98
99047	Aldus HomePublisher V2.0	\$42.98
95306	Aldus Pagemaker	\$88.98
04190	Aldus SuperPaint V3.5	\$43.98
06711	Desktop Publishing V4.0	\$47.98
94159	Design Kit for Pagemaker 4.0 to 5.0	\$44.98
02383	Dimensions V2.0	\$128.00
93981	Extensis PageTools 1.0	\$62.98
95314	Fetch V1.2 Single User	\$53.98
06808	Illustrator V5.0-5.5 Upgrade	\$98.98
94941	Illustrator V5.5	\$362.98
04573	Pagemaker V5.0	\$539.98
94177	Pagemaker V5.0 PMac	\$559.98
03346	Persuasion V3.0	\$201.98
04042	Photoshop 3.0	\$557.98
95341	Photoshop 3.0 Upgrade	\$146.98
05702	Premiere V3.0 Upgrade	\$71.98
04670	Premiere V4.0	\$497.98
03971	Streamline V3.0	\$121.98
05712	TouchBase Pro V4.0	\$47.98
03950	Type On Call 4.0	\$42.98
Aladdin		
96501	StarCom	\$62.98
05827	StarTrix Deluxe 3.5	\$71.98

**Soft-Windows for Mac #94287**

**Only \$297**

Run Thousands of Applications For Windows On Your Macintosh.

Asoft		
00618	DiskExpress II 2.2	\$42.98
04543	Master Juggler 1.9	\$31.98
Alsys		
04537	Fontographer V4.1	\$324.98
ASD		
03552	Avery MacLabel Pro	\$43.98
BESTWARE!		
99042	MYDB Accounting V5.0 w/Payroll	\$193.98
04712	MYDB Accounting	\$78.98
Broderbund		
05108	Artisan's Teachers Trouble CD	\$34.98
95461	Automap Atlas	\$54.98
99564	Cartman San Diego USA DLX	\$39.98
97322	Cartman San Diego World DLX CD-ROM	\$51.98
97323	MYST	\$46.98
01015	Print Shop Deluxe	\$44.98
04187	The Playroom 2.0	\$29.98
97731	The Tortoise and the Hare	\$34.98
Core		
05161	OmniPage Direct V2.0	\$59.98
01005	OmniPage Pro V5.0	\$448.98
Claris		
19852	Claris Draw	\$175.98
03424	Claris Works V3.0	\$118.98
03478	FieldMaker Pro V2.1	\$89.98
99734	Impact V1.0	\$133.98
04140	MacProject Pro V1.5	\$364.98
05525	MacWrite Pro V1.5	\$97.98
18051	Organizer	\$47.98
06304	Retrieve III	\$28.98
Connectix		
05646	PowerBook Utilities	\$53.98
56785	RAM Doubler	\$53.98
Corel		
95331	Corel GALLERY	\$31.98
96906	Corel Professional Photo CD's - Call	\$16.98
Dantz		
00203	Cricket Graph III	\$64.98
05326	Desktop Direct V1.0	\$28.98
04722	Desktop V2.1	\$134.98
05586	Retrospect w/ Remote 100k	\$244.98
Datawatch		
05533	Citadel w/ Shredder	\$68.98
02077	Virus V5.0.3	\$59.98
Dataviz		
96907	MacLink Plus/PC Connect 8.0	\$113.98
96906	MacLink Plus/Translators Pro 8.0	\$94.98
Delrina		
97921	FastPro for Mac V1.5	\$53.98
17271	Intermission Screen Saver	\$27.98
97938	Opus & Bit Screen Saver	\$27.98
DeltaPoint		
04805	DeltaGraph Pro 3.5	\$124.98
97780	DeltaGraph Pro 3.5 Comp. Upgr.	\$77.98

Denebo		
00603	Canvas V3.5	\$256.98
05991	KidDesk	\$28.98
05992	Miller's Math House	\$32.98
94441	Sammy's Science House	\$32.98
98331	Thinkin' Things	\$36.98
93785	Thinkin' Things II	\$39.98
Electronic Art		
97701	Chuck Yeager's Air Combat	\$34.98
00473	Golf PGA Tour II	\$37.98
97707	Victory at Sea	\$44.98
Entertainment		
02785	After Dark V3.0	\$27.98
95583	Maxis A-Train w/ Construction Set	\$27.98
95221	Maxis El Fish	\$27.98
04721	Maxis SimCity	\$17.98
98222	Maxis SimCity 2000	\$37.98
95216	Maxis SimCity Classic	\$21.98
03600	Maxis SimEarth	\$29.98
06488	Microprose Civilization	\$42.98
04053	More After Dark vol. 1	\$22.98
97127	Paramount Jump Raven CD	\$37.98
97146	Paramount Lunicus CD	\$37.98
97145	"Paramount Rock, Rap and Roll CD"	\$39.98
06518	Passport Music Time V2.0	\$89.98
95423	Prince of Persia II	\$34.98
06485	Psychosis Lemmings	\$32.98
95237	Psychosis More Lemmings	\$32.98
94267	Simpson's Screen Saver	\$27.98
05934	Star Trek Screen Saver	\$27.98
06519	The Disney Screen Saver Collection	\$26.98
97197	Velocity Development Spectra VR	\$33.98
94593	Velocity Development Spectra VR CD	\$33.98
95235	Virgin 7th Guest	\$41.98
94599	Virgin The 11th Hour: Sequel to the 7th Guest	\$54.98
Equilibrium		
96901	DeBabelizer Lite	\$82.98
98360	DeBabelizer Toolbox 1.6	\$257.98
Fractal Design		
00665	Painter V3.0	\$302.98
93957	Painter V3.0 Upgrade	\$144.98
93994	Painter V3.0 Upgrade from PainterX2	\$89.98
Frame Technology		
03582	FrameMaker V4.0	\$551.98
98039	FrameViewer V4.0	\$44.98
96800	Farallon Timbuktu Pro	\$126.98
GDT Software		
00542	PowerPrint 2.5	\$93.98
94262	StyleScript	\$94.98
99506	Glyphon Morph V2.5	\$97.98
HSC Software		
06668	HSC Kalls Power Tools V2.1	\$108.98
95335	KPT Bryce 1.0	\$117.98
95336	KPT Suite Imaging (Bryce & KPT)	\$178.98
92243	KPT Converter 1.0	\$115.00
98307	Bulkseye Font Collection	\$59.98
00397	Ideafisher V2.0	\$93.98
Insigina		
03664	Access PC V3.0	\$74.98
06786	RapidCD	\$42.98
04541	Soft PC V3.0	\$88.98
06715	Soft PC w/ Windows	\$296.98
98471	SoftWindows	\$296.98
Intuit		
93222	QuickBooks 3	\$110.98

Adobe PageMaker 5.0 Ver. Upgr #92206		
		<b>Only \$144</b>
04230	Quicken 5	\$39.98
JIAN		
04257	Biz Plan Builder 5.0	\$78.98
01045	Employee Manual Maker 3.0	\$91.98
04996	Living Trust Builder 3.2	\$51.00
06827	Publicity Builder 2.0	\$84.98
Kent Marsh		
00258	Foldebook V1.02	\$68.98
Kodak		
94926	Photo CD Access Plus	\$35.98
06924	Shoebox	\$99.98
Leader Technologies		
05690	PowerMerge 2.0	\$78.98
Light Source		
99489	Oloto 1.1.1 (Gray Scale)	\$132.98
00657	Oloto 2.0	\$187.98
Lotus		
00507	1-2-3 V1.1	\$276.98
06502	1-2-3 V1.1 Ver. Upgr.	\$92.98
MacPlay		
97125	AstroChase	\$34.98
99575	Batlicious Enhanced	\$44.98
97122	Castles II: Siege & Conquest	\$29.98
97149	Peter Gabriel XPLORA 1	\$45.98
95426	Star Trek 25th Anniversary CD	\$37.00
Macromedia		
94180	FreeHand 5.0	\$387.98
92267	FreeHand 5.0 Competitive Upgrade	\$196.98

**Adobe PageMaker 5.0 Ver. Upgr #92206**

**Only \$144**

Adobe PageMaker 5.0

Mainstay		
94182	FreeHand 5.0 Upgrade	\$147.98
99524	Macromedia Action! Bundle	\$281.98
00339	Macromedia Director V4.0	\$787.98
05310	Macromedia Director V4.0	\$844.98
97770	SoundEdit 16 CD	\$276.98
03619	Swivel 3D Professional	\$298.98
06940	Mac P & L	\$184.98
Microsoft		
01159	MacFlow 4.0	\$221.98
93218	Plan and Track	\$191.98
99023	ManagePro V2.0	\$197.98
Metrowerks		
94281	CodeWarrior Gold	\$359.98
92853	CodeWarrior Bronze	\$89.98
Microsoft		
99702	Cinemania 1995	\$47.98
00227	Excel V5.0	\$289.98
04545	Excel V5.0 Ver Upg	\$108.98
04293	Flight Simulator V4.0	\$38.98
96959	FontPro V2.6	\$34.98
02427	Office V4.2	\$298.98
01220	PowerPoint V4.0	\$297.98
04161	Project V3.0	\$411.98

**Microsoft Word 6.0 Ver. Upgr #00596**

**Only \$108**

Microsoft Word 6.0

Microspot		
00318	MacPaint II	\$44.98
05641	MacPaint Pen Plotter Professional 4.0	\$259.98
Microtec Software		
95417	French Assistant	\$46.98
95416	German Assistant	\$46.98
95415	Italian Assistant	\$46.98
95418	Spanish Assistant	\$46.98
Now Software		
00580	Now Software Now Up-to-Date V3.0	\$58.98
04191	Now Software Now Utilities V5.0	\$78.98
99255	Omniscan	\$296.98
04806	Org Plus 1.0	\$121.98
02594	Peachtree Accounting 2.5	\$94.98
05745	Peachtree Insight Accounting	\$284.98
OSC		
96277	Deck II V2.2	\$328.98
96278	Metro 3.0	\$172.98
Pixar		
05668	Pixar Press V2.1	\$106.98
04735	QuarkXPress V3.31	\$568.98
Photodex		
96508	The Picture Factory Set 1	\$38.98
PhotoDisc		
97349	PhotoDisc Starter Kit	\$38.98
Ray Dream		
97758	addDepth with 25 free FunFonts	\$97.98
00441	Designer V3.0	\$221.98
04150	JAG II	\$83.98
Shana Corp.		
94313	Informed Database Extensions 1.0	\$78.98
03722	Informed Designer 1.4	\$147.98
06830	Informed Foundation 1.4	\$246.98
04547	Informed Manager 1.4	\$98.98
Sierra On-Line		
04663	Hoyle II	\$19.98
04675	Kings Quest V	\$34.98
SoftKey		
95594	American Heritage Talking Dictionary CD	\$39.98
03531	Calendar Creator	\$42.98
99029	Cal Complete	\$29.98
00541	WriteNow V4.0	\$44.98
Spectrum Holobyte		
06394	Falcon MC	\$48.98
06652	Iron Helix CD	\$54.98
Specular International		
95535	Collage	\$269.98
03815	Infini-D 2.6	\$499.98
95285	Logomotion	\$106.98
Symantec		
06231	ACT! V2.0	\$154.98
06997	Disk Doubler Pro V1.1	\$88.98
04113	DeskLink V3.0	\$88.98
03481	MacTools 4.0 Pro	\$54.98
04890	Norton Utilities V3.1	\$92.98
01116	SAM 4.0	\$83.98
04776	Suitcase V2.1	\$49.98
06243	Software Ventures MicroPhone Pro	\$131.98
T/Maker		
05880	ClickArt Artistry & Borders	\$52.98
99555	ClickArt Incredible Image Pak CD	\$82.98
94936	Video Director 1.5	\$125.98
00481	WillMaker 5	\$37.98
WordPerfect		
03972	WordPerfect 3.1	\$71.98
05013	WordPerfect V3.1 Ver Upg	\$54.98
96375	Grammar V6.0	\$34.98

**Call MAC BARGAIN\$ before you buy! Why get slower ground shipping Overnight Delivery Only \$6.00 and up**

Add applicable sales tax (only in WA, OH). All shipments refer to "in stock" items, barring system failures, etc. Not responsible for typographical errors. Credit cards are not charged until the order is shipped. Most products ship the same day for overnight delivery. Orders over 10lbs charged actual freight. Call for international shipping rates. Packaging and handling up to \$8 per order. Returns subject to a restocking fee. Prices and product availability subject to change without notice. Specials and promotions may be limited to



**DISCOUNT PRICES ON QUALITY HARDWARE, SOFTWARE & ACCESSORIES**

## MACWORLD May 1995 183



Best  
Technical  
Support



1994  
Consultants  
Choice Awards  
+ Macintosh  
Consultants  
Network

Great Products. Priceless Support!

# More Megs, Less Bucks

**\$999<sup>95</sup>**  
Internal configuration



## Macworld 1994 World-Class Awards:

- ★ Best Customer Service
- ★ Storage
- ★ Alternative Storage

## Macworld 1993 World-Class Award:

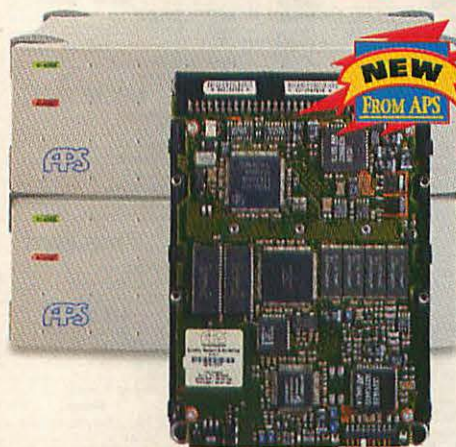
- ★ APS Hard Drive Series

## Consultants Choice Award 1994:

- ★ Best Technical Support

## MacUser Editor's Choice Award 1993:

- ★ Best New Storage Product



APS Q 2.0

## APS Q 730



**ONLY!**  
**\$279<sup>95</sup>**  
Internal configuration

## APS Q 730

With an average seek time of 11 ms and an average access time of 20 ms, the APS Q 730 is a great drive for any user. A formatted capacity of almost 700MB, this drive can handle all your data intensive needs.

## APS HARD DRIVES

For your Mac  
or Power Mac

Model	Capacity	Internal	SR2000
<b>349-2040MB</b>			

APS Q 365 <sup>2</sup>	349MB	\$179 <sup>95</sup>	\$279 <sup>95</sup>
Quantum 365 Lightning			
APS Q 730 <sup>2</sup>	699MB	279 <sup>95</sup>	379 <sup>95</sup>
Quantum 730 Lightning			
APS ST 1.0 <sup>5</sup>	1010MB	549 <sup>95</sup>	649 <sup>95</sup>
Seagate ST 31230N Hawk			
APS Q 1.0 <sup>5</sup>	1025MB	699 <sup>95</sup>	799 <sup>95</sup>
Quantum Atlas 3107 mechanism			
APS Q 2.0 <sup>5</sup>	2050MB	999 <sup>95</sup>	1099 <sup>95</sup>
Quantum Atlas 3215 mechanism			
APS MS 2.0 <sup>5</sup>	1955MB	999 <sup>95</sup>	1099 <sup>95</sup>
Micropolis 4221 mechanism			
APS MS 2.0av <sup>5</sup>	1955MB	1099 <sup>95</sup>	1199 <sup>95</sup>
Micropolis 4221AV mechanism			
APS ST 2.0 <sup>5</sup>	2040MB	1199 <sup>95</sup>	1299 <sup>95</sup>
Seagate ST 32560N Barracuda			

DA Term™ patent pending  
Copyright © 1995 APS Technologies  
Internal drives for Quadra 800 and Centris 610 available  
1-5 Denotes length of manufacturer's warranty

Model	Capacity	Internal	SR2000
<b>4095-9090MB</b>			

APS MS 4.0 <sup>5</sup>	4095MB	\$1499 <sup>95</sup>	\$1599 <sup>95</sup>
Micropolis 3243 mechanism			
APS MS 4.0av <sup>5</sup>	4064MB	1599 <sup>95</sup>	1699 <sup>95</sup>
Micropolis 3243AV mechanism			
APS ST 4.0 <sup>5</sup>	4294MB	1899 <sup>95</sup>	1999 <sup>95</sup>
Seagate ST 15150N mechanism			
APS MS 9.0 <sup>5</sup>	8669MB	2999 <sup>95</sup>	*3199 <sup>95</sup>
Micropolis 1991 mechanism			
APS MS 9.0av <sup>5</sup>	8669MB	3099 <sup>95</sup>	*3299 <sup>95</sup>
Micropolis 1991AV mechanism			
APS ST 9.0 <sup>5</sup>	9090MB	3299 <sup>95</sup>	*3499 <sup>95</sup>
Seagate ST 410800N mechanism			

\* External case is special Full Height only  
Full Height cases include SCSI Sentry FREE!



## APS Q 2.0

The new high-performance, high capacity APS Q 2.0 may just be the answer to your file server or graphics storage needs. At 7200 rpm and boasting average seek and access times of 5.8 and 13 ms respectively, the APS Q 2.0 is the one to turn to for performance and value.

## ARRAID™

Get up to 30% better performance out of Photoshop or Quark, and an increase in video throughput of up to 90% to 95% with ARRAID. From graphics and video professionals to systems managers and database administrators, ARRAID provides remarkable speed and fault-tolerant reliability to get your projects done faster.



Model	Capacity	RAID Stripe	Price
<b>APS ARRAID</b>			

ARRAID S2/5400 <sup>5</sup>	2GB	Striped	\$1399 <sup>95</sup>
ARRAID S2/7200 <sup>5</sup>	2GB	Striped	1599 <sup>95</sup>
ARRAID S4/7200 <sup>5</sup>	4GB	Striped	2499 <sup>95</sup>
ARRAID S8/7200 <sup>5</sup>	8GB	Striped	3999 <sup>95</sup>
ARRAID M1/7200 <sup>5</sup>	1GB	Mirrored	1599 <sup>95</sup>
ARRAID M2/7200 <sup>5</sup>	2GB	Mirrored	2499 <sup>95</sup>



ARRAID: Disk Array systems from APS are high performance, easy-to-use disk array storage solutions. ARRAID provides the power, reliability and plug-and-play convenience Macintosh users expect. Available in mirrored or striped configurations up to 16GB, with a 5-year warranty.

**ARRAID is RAID Made Easy!**



# APS Technologies

1 - 8 0 0 8 7 4 - 1 4 2 8

APS Technologies

6131 Deramus, Kansas City, MO 64120





# 20GB & 110MB per minute!

## \$2999<sup>95</sup>

### APS DLT20

#### Introducing the APS DLT20!

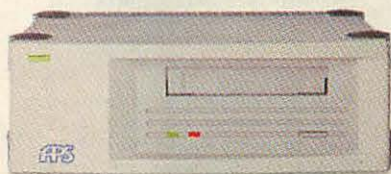
The backup device for those who find that 8mm and DAT just aren't enough. The APS DLT20 is designed to handle large databases, digital video files, prepress applications and other environments where there is an ongoing need to backup very large data files that change frequently or that need to be archived in whole.

- Up to 20GB per tape
- Up to 110MB per minute
- You save time
- You save down time
- You save \$\$\$
- You save your data



APS DLT20

DLT20 Data Cartridge  
**\$45<sup>95</sup>**



**\$799<sup>95</sup>**

External configuration

### APS DAT

Buy the APS DAT at just \$799.95 and you'll get the expanded capability provided by an enhanced speed mechanism and hardware data compression! The APS DAT—now up to 20% faster than other DDS-1 DC drives—packs up to 4GB\* of data on a 90M tape! Amazing!

**\$999<sup>95</sup>**

External configuration

### APS HyperDAT

If you need high-speed backup, you need the DDS-2 power of the APS HyperDAT! Back up locally at rates as high as 28MB per minute! Pack up to 8GB\* on a single tape! Best of all, your regular DDS and DDS compression tapes can be read by APS HyperDAT too!

### APS TAPE DRIVES

Model	Capacity*	Internal	External
APS DLT20 <sup>1</sup>	20GB	—	\$2999 <sup>95</sup>
APS HyperDAT <sup>1</sup>	8GB on 120m	949 <sup>95</sup>	999 <sup>95</sup>
APS DAT <sup>2</sup>	4GB on 90m	749 <sup>95</sup>	799 <sup>95</sup>

\*Actual data compression and tape capacity vary greatly depending on the type of data recorded, other system parameters and environment.  
† 2:1 Hardware data compression

#### All APS DATs Include Retrospect by Dantz

Tape Media	1-4	5-19	20+
60-Meter	\$7 <sup>95</sup>	\$6 <sup>95</sup>	\$5 <sup>95</sup>
90-Meter	9 <sup>95</sup>	18 <sup>95</sup>	7 <sup>95</sup>
120-Meter (DDS-2)	19 <sup>95</sup>	18 <sup>95</sup>	17 <sup>95</sup>
DLT Data cartridge	45 <sup>95</sup>	—	—
DLT 3PK Data cartridges	129 <sup>95</sup>	—	—

### APS REMOVABLES

Model	Capacity	SR 2000
APS SQ 3270 <sup>2</sup>	270MB	\$479 <sup>95</sup>
APS SQ 5200 <sup>2</sup>	200MB†	499 <sup>95</sup>
APS SQ 5110 <sup>2</sup>	44/88MB†	369 <sup>95</sup>

† Does not format 44MB cartridges  
†† Does not format 44MB & 88MB cartridges  
All SyQuest drives include 1 FREE cartridge

SyQuest Media	1-4	5-9	10+
SQ-400 (44MB) cartridge	\$44 <sup>95</sup>	\$43 <sup>95</sup>	\$41 <sup>95</sup>
SQ-800 (88MB) cartridge	54 <sup>95</sup>	53 <sup>95</sup>	51 <sup>95</sup>
SQ-2000 (200MB) cartridge	84 <sup>95</sup>	83 <sup>95</sup>	81 <sup>95</sup>
SQ-310 (105MB) cartridge	59 <sup>95</sup>	58 <sup>95</sup>	56 <sup>95</sup>
SQ-327 (270MB) cartridge	64 <sup>95</sup>	63 <sup>95</sup>	61 <sup>95</sup>

Prices listed are for unformatted media

### APS MO DRIVES

Model	Internal	SR 2000
APS 230MB MO <sup>1</sup>	—	\$799 <sup>95</sup>
APS 1.3GB MO <sup>1</sup>	1899 <sup>95</sup>	1999 <sup>95</sup>

All MO drives include 1 FREE cartridge

MO Media	1-4	5-9	10+
128MB cartridge —	\$35 <sup>95</sup>	\$34 <sup>95</sup>	\$29 <sup>95</sup>
230MB cartridge —	45 <sup>95</sup>	44 <sup>95</sup>	39 <sup>95</sup>
1.3GB cartridge —	109 <sup>95</sup>	109 <sup>95</sup>	104 <sup>95</sup>

(1024KB/5)

1-5 Denotes length of manufacturer's warranty

### APS INTERNATIONAL Global Storage Resource

APS Intl. Sales Line (816) 920-4109  
On parle français au (816) 920-4135  
Se habla español en (816) 920-4136  
Si parla l'italiano in (816) 920-4137  
Wir sprechen Deutsch (816) 920-4138  
どうぞご遠慮なく日本語の  
ファックスでもお申込み下さい。  
24-Hour Intl. Fax: (816) 483-3077



International Sales

### POWERBOOK DRIVES

Model	Capacity	Internal	LW Pro 630	Companion II
APS T 340 <sup>1</sup>	324MB	\$299 <sup>95</sup>	\$349 <sup>95</sup>	\$449 <sup>95</sup>
APS Q 341 <sup>1</sup>	326MB	299 <sup>95</sup>	349 <sup>95</sup>	—
APS Q 514 <sup>1</sup>	490MB	399 <sup>95</sup>	449 <sup>95</sup>	—
APS T 520 <sup>1</sup>	511MB	449 <sup>95</sup>	499 <sup>95</sup>	599 <sup>95</sup>

### POWERBOOK STUFF

APS SCSI DOC  
w/PowerMerge Lite



\$39<sup>95</sup>

Palm-Sized 25-30 PowerBook SCSI Adapter that includes a docking adapter for PowerBook and termination power indicator. Receive Power-Merge Lite Free with every APS SCSI DOC!



Visa, MasterCard, Discover,  
American Express: No Surcharge



Same day shipping for  
personal checks (Restrictions apply)

# I-800 874-1428

Circle 62 on reader service card

# APS

Technologies



# BUSINESS LEASING

Warranted/Updated technology at your fingertips

BECAUSE 80% OF AMERICAN COMPANIES LEASE, DIGICORE HAS CREATED THE ULTIMATE LEASE PLAN, ADMINISTERED BY TRICON CAPITAL CORPORATION.

- Any established business can lease
- Purchase options are available
- Warranted equipment for lease term
- Quick approvals & deliveries
- Flexible terms • No Down Payment
- Low fixed monthly payment
- Aggressive pricing

## The Initiate



Lease  
**\$106**  
36 mo

**PowerMac 6100/66, 8-350 w/CD**  
15" Multiscan Display  
Extended Keyboard  
SyQuest 270, external

## CyberMac 81 Workstation

**PowerMac 8100/100AV, 16-1000 CD**  
20" Multiscan Display  
Supernova GX 1152



Lease  
**\$298**  
36 mo

Extended Keyboard  
SyQuest 270, external

## The Enterprise 7101

**PowerMac 7100/80, 16-700 w/CD**  
17" Multiscan Display  
Extended Keyboard  
SyQuest 270, external

Lease  
**\$190**  
36 mo



## Demon Workstation 8110



**PowerMac 8100/110, 16-2000 CD**  
21" Multiscan Display  
Supernova GX 1600  
VideoVision 2 Pro Pak  
w/4.2 GB Array  
Premiere 4/VideoFusion  
Ext KB, Apple Design Speakers

Lease  
**\$456**  
60 mo

\* Activation required. Phones vary with rate plan. Phone certificates are transferable and valid for 6 mos. Allow 2-3 weeks for delivery. Certain restrictions may apply. Void where prohibited by law.

## PowerMac

	Lease
6100/66, 8-350	1576 52
6100/66, 8-350 w/CD	1758 58
6100/66AV, 8-350 w/CD	2156 71
6100/66, 16-500 w/DOS	2390 78
7100, 8-500 w/CD	2295 75
7100/80, 8-500	2512 82
7100/80, 8-700 w/CD	2806 92
7100/80AV, 16-700 CD	3317 109
8100, 8-500	2695 88
8100, 16-500 w/CD	3195 105
8100/100, 8-700	3143 103
8100/100, 16-1GB w/CD	3873 127
8100/100AV, 16-1GB CD	4060 133
8100/110, 16-2GB w/CD	5419 178
Quadra 950, 8-0	2672 88
Quadra 630, 4-250	1028 34
Performa 6115CD	2595 86
Performa 630, 8-250 CD	1785 73
Performa 475, 4-160	1095 35

## Monitors

	Lease
Apple 20" Multiple Scan	1826 60
Apple 17" Multiple Scan	968 32
Apple 14" AV Clr Display	549 17
Apple 15" Multiple Scan	479 14
Apple 14" Color Plus	295 —
Supernova 21" FXL	2010 66
Supernova Pressview 21 T	2999 98
Radius IntelliColor/20e	1795 62
Radius PrecisionColor 20v	1399 46

## Video Boards

	Lease
Supernova T-II GX1600	2699 88
Supernova T-II GX1360	1995 63
Supernova GX1152	1895 75
Radius Thunder IV cards	call —
Radius PColor Pro 24X	1295 43
Radius LeMans GT	899 39
Radius PColor 24XP	299 15
Radius VIDEO VISION v2	3350 109

w/Premiere v4 & VideoFusion

**FREE** Cellular Phone  
with ANY CPU purchase\*

## WG Servers

	Lease
6150, 8-500 w/CD	2208 72
8150, 8-500 w/AppleShare	4044 133
9150, 8-2000 w/CD	5188 170



## Powerbooks

	Lease
150, 4-120	1349 44
520, 4-160	1795 55
520c, 4-160	2295 75
520c, 12-160 w/modem	2925 95
540c, 4-320	3195 104
540c, 12-500 w/modem	3875 127
280c, 4-320	3150 103
280c, 12-320 w/modem	3800 124

## Printers

	Lease
StyleWriter II	295 —
Color StyleWriter 2400	589 18
HP 4MV	2699 87
HP 4MP	1299 42
LaserWriter 16/600	2095 69
LaserWriter 360	1299 39

## Scanners

	Lease
Agfa StudioScan II	899 29
Agfa Arcus Plus II	2599 85
HP ScanJet IIcx	990 42
UMAX Vista S6	825 36
UMAX Vista S8	999 33
Microtek Scanmaker III	2675 88
Microtek IIISP	850 28
Nikon CoolScan	1759 58

## Opticals/Storage

	Lease
Pinnacle RCD 1000	1799 66
Pinnacle Tahoe 230	999 33
FWB HammerDAT2000	1297 39
FWB HammerDAT5000	1389 45
PLI SyQuest 200c	599 20
Plexitor 4Plex CD-ROM	649 21
Radius 4 GB Pro Array	5400 179
1 GB Quantum 1080S	579 19
1.7 GB Micropolis	810 39
2.1 GB Seagate/Quantum	1140 37
2.4 GB Seagate Barracuda	1195 39
4 GB Seagate Barracuda4	1995 60

## CD-ROMs

### Arts

34.95	Macbeth
44.95	Xplore 1
59.95	American Visions
39.95	Prince Interactive
22.95	The Orchestra
34.95	Freak Show
98.95	Rosetta Stone PowerPac
34.95	Salt of the Earth
19.95	A Hard Day's Night
29.95	Mozart
31.95	The Complete Maus

### Biz

139.95	PhoneDisc Powerfinder
16.95	Take Five
9.95	Great Business Jokes
499.95	AcruZip
74.95	Street Atlas USA

### Kids

34.95	The Marshmallow
39.95	Mario Is Missing!
44.95	Amazing Animation
9.95	Word Tales
34.95	Cosmic Osmo
19.95	Peter and the Wolf
29.95	DinoSource
34.95	Comic Book Confidential
29.95	Parenting (Prenatal to Preschool)

### Life (Nature)

22.95	The Animals
44.95	From Alice to Ocean
39.95	Prehistory
44.95	The Rainforest
34.95	OceanLife Vol 4: Great Barrier Reef
34.95	OceanLife Vol 3: Hawaiian Islands
29.95	Audubon's Birds
29.95	Audubon's Mammals
19.95	Oceans Below
44.95	Woodstock
34.95	Whales & Dolphins

### Play (Games)

49.95	Myst
59.95	Cosmology of Kyoto
39.95	Marathon
55.95	Star Trek 25th Anniversary
55.95	Nest Generation Tech Manual
44.95	Baseball's Greatest Hits
59.95	Gadget
44.95	Indiana Jones—Fate of Atlantis
59.95	Iron Heels
39.95	The Chessmaster 3000
44.95	Rebel Assault
49.95	Where in the World Is Carmen Sandiego?
49.95	The 7th Guest
65.95	The 11th Hour
34.95	C.H.A.O.S. Continuum
44.95	Jump Raven
9.95	Funny
49.95	Return to Zork
49.95	Saturday Night Live
39.95	Spectre VR

### Reference

49.95	Grolier's Encyclopedia v6.0
19.95	The View From Earth
39.95	Mayo Clinic—Family Health Book
39.95	Mayo Clinic—The Total Heart
9.95	Macintosh Product Registry
69.95	Time Almanac
39.95	Exploring Ancient Cities
55.95	Compton's '95
22.95	World Atlas
22.95	US Atlas
19.95	Capitol Hill
49.95	World Atlas
49.95	Redshift
19.95	Space Shuttle
39.95	Guinness Records '94
22.95	Desert Storm
39.95	The First Emperor of China
34.95	Who Built America?

**Grolier FREE**  
with CPU purchase



# DigiCore

formerly MacLink

Over 2600 Apple products to choose from — call for unlisted products  
All Major Credit Cards Accepted — CODs Available

Due to publication time constraints prices may vary • All Prices Reflect CASH DISCOUNT •  
No Sales Tax EXCEPT in CA • Live Operator on duty • Hours: Mon-Fri, 7am to 7pm, 24 hr FAX LINE  
FREE Subscription to DigiCore Catalog, no purchase necessary •  
Non-Defective Returns or Shipped Orders may be subject to Restocking Fee •  
Shipping and service fees are non-refundable •  
Lease prices are approximate based on 36 months (on approved credit) •  
All products carry a 1 yr minimum manufacturer's warranty on parts and labor unless otherwise specified •

Order Toll-free  
**800-858-4622**

ph 818-785-2800  
fx 818-785-3100

DigiCore Inc.  
15500 erwin st. #2002  
van nuys, ca 91411



## Hard Drives

### Quantum Quantum Quantum

#### Maverick Series

Capacity	Access	RPM	Cache	Int.	Ext.
270 MB	14 ms	3600	128K	170	230
540 MB	14 ms	3600	128K	220	280

#### Lightning & LPS

Capacity	Access	RPM	Cache	Int.	Ext.
270 MB	11 ms	4500	128K	185	265
340 MB	11 ms	4500	128K	179	239
365 MB	11 ms	4500	128K	195	255
535 MB	9.5 ms	4500	512K	240	300
730 MB	11 ms	4500	128K	285	345

#### Empire & Grand Prix

Capacity	Access	RPM	Cache	Int.	Ext.
1080 MB	10ms	5400	512K	579	639
1337 MB	9.5 ms	5400	512K	695	755
2100 MB	9.5 ms	5400	512K	979	1039
4200 MB	8.6 ms	7200	512K	1849	1909

#### Daytona Powerbook Drives

Capacity	Access	Warranty	Int.	Ext.
256 MB	17ms	1 Year	280	380
340 MB	17ms	1 Year	330	430
514 MB	14ms	1 Year	445	545

### MICROPOLIS MICROPOLIS

Capacity	Size	Model	Access	RPM	Cache	Int.	Ext.
1.2 GB	3.5"	M4110	8 ms	5400	512K	\$585	\$645
1.7 GB	3.5"	M2217	10 ms	5400	512K	890	950
2.1 GB	3.5"	M4221	8.5 ms	7200	512K	895	955
3.6 GB	5.25"	M1936	11 ms	5400	256K	1220	1320
4.3 GB	3.5"	M3243	8.5 ms	7200	512K	1575	1635
9.0 GB	5.25"	M1991	11 ms	5400	512K	2775	2875

#### Seagate Seagate Seagate Seagate

Capacity	Size	Model	Access	RPM	Cache	Int.	Ext.
1.0 GB	3.5"	Hawk 1LP	10ms	5400	512K	\$565	\$625
2.1 GB	3.5"	Hawk 2LP	9ms	5400	512K	1059	1119
4.2 GB	3.5"	Hawk 4	9ms	5400	512K	1599	1659
1.0 GB	3.5"	Barracuda 2LP	8ms	7200	1024K	805	865
2.4 GB	3.5"	Barracuda 2LP	8ms	7200	1024K	1105	1165
4.2 GB	3.5"	Barracuda 4	8ms	7200	1024K	1825	1885
9 GB	5.25"	ST 410800N	11ms	5400	512K	3095	3195

IBM Drives utilize IBM's advanced Magneto-Resistive (MR) disk technology which increases the amount of data stored per disk surface and reduces the number of heads making the IBM series more streamlined and reliable.

#### IBM IBM IBM IBM IBM

Capacity	Seek	RPM	Warranty	Int.	Ext.
540 MB	12 ms	4500	2 Year	245	305
720 MB	12 ms	4500	2 Year	295	355
1.0 GB	11 ms	5400	5 Year	595	655
2.0 GB	9 ms	5400	5 Year	1060	1130

### Genuine Products by



Capacity	Seek	RPM	Int.	Ext.
88 MB	SGS110C	20ms	3200	300 360
200 MB	SGS200	18 ms	3200	420 480
270 MB	SGS270	13.5ms	3200	420 480

2 Year Warranty on all SyQuest Drives  
SyQuest drives come complete with a cartridge (Formatted or Unformatted) and the latest SCSI 4.3 compatible software.

#### SyQuest Media

Capacity	Model	Warranty	Price
44 MB	SQ400	5 year	\$41
88 MB	SQ800	5 year	47
105 MB	SQ310	5 year	53
200 MB	SQ2000	5 year	75
270 MB	SQ327	5 year	63

One FREE Cartridge Included with all SyQuest Drives!

#### 5 Year Warranty HP HEWLETT PACKARD HP HEWLETT PACKARD

Capacity	Access	RPM	Int.	Ext.
1.2 GB	C3323	9.5 ms	5400	\$625 \$685
2.4 GB	C2490	8.5 ms	6400	1150 1210

## Direct to Disk Recording Audio/Visual Hard Drives

### MICROPOLIS MICROPOLIS

Capacity	Size	Model	Access	RPM	Cache	Int.	Ext.
1.2 GB	3.5"	M4110AV	10 ms	5400	512K	\$625	\$685
1.7 GB	3.5"	M2217AV	10 ms	5400	512K	945	1005
2.1 GB	3.5"	M4221AV	8.5 ms	7200	512K	1095	1155
3.6 GB	5.25"	M1936AV	11 ms	5400	512K	1265	1365
4.3 GB	3.5"	M3243AV	8.5 ms	7200	512K	1650	1710
9.0 GB	5.25"	M1991AV	11 ms	5400	512K	2875	2935

Questions? Call our expert AV sales staff

ProDirect A/V Hard Drives are specially tuned for Maximum A/V Performance!!!

#### Seagate Seagate Seagate Seagate

Capacity	Size	Model	Access	RPM	Cache	Int.	Ext.
1.0 GB	3.5"	Barracuda 2LP	8ms	7200	1024K	805	865
2.4 GB	3.5"	Barracuda 2LP	8ms	7200	1024K	1105	1165
4.2 GB	3.5"	Barracuda 4	8ms	7200	1024K	1825	1885
2.4 GB	3.5"	Barracuda 2W	8ms	7200	1024K	1345	1445
4.2 GB	3.5"	Barracuda 4W	8ms	7200	1024K	2485	2615

Always call for the Most Competitive Pricing!!!!

Call to determine what AV drive will meet your specific needs.

Always call for the Most Competitive Pricing!!!!

## Quantum Quantum Quantum Quantum Quantum Quantum

### NEW The Atlas Series

The new A/V drives by Quantum with MR technology are specially tuned to maximize your performance by ProDirect!

Capacity	Size	Model	Access	RPM	Cache	Int.	Ext.
1.0 GB	3.5"	XP3107	9 ms	7200	1024K	Call	Call
2.1 GB	3.5"	XP32150	9 ms	7200	1024K	1035	1095
4.3 GB	3.5"	XP34300	12 ms	7200	512K	1815	1875

Maximizing your Transfer Rate and no thermal recalibration (T-Cal) equals

Maximum A/V Performance!!!

### CD Rom Drives

Model	Access	Transfer	Price
NEC MultiSpin 2V	320ms	300Kb/sec	\$245
MultiSpin 3Xp	240ms	500Kb/sec	\$395
MultiSpin 4Xe	220ms	600Kb/sec	\$495
Plextor 4PlexQuadSpeed	235ms	600Kb/sec	\$540
CHINON CDX535 Dual Speed	280ms	300Kb/sec	\$235

### Scanners & Printers

Nikon Scantouch Transparency Adapter	\$1220
Coolscan 35mm film scanner	\$535
UMAX UC630/1260 Vista-S6 Powerlook	\$1450
DeskWriter 560C InkJet Printer	\$568
DeskWriter 1200C	1995
LaserJet 4ML Printer	1027
LaserJet 4MP Printer	1367
LaserJet 4M Plus Printer	2120

### Tape Backup Drives

Capacity	Model	Transfer Rate	Media	Int.	Ext.
2.0 GB	35470	15 MB/min.	4mm	\$835	\$885
3-5 GB	35480	45 MB/min.	4mm	1039	1099
4-10 GB	1533A	60 MB/min.	4mm	1235	1295
20-50 GB	1553A	60 MB/min.	4mm	3195	3295
Exabyte					
2-5 GB	8205	263 KB/sec.	8mm	\$1425	\$1495
5-10 GB	8505	500 KB/sec.	8mm	2175	2275
7-14 GB	8505XL	500 KB/sec.	8mm	2250	2310

All tape backup drives include 1 piece of media and Retrospect backup software.

### SCSI-2 Accelerators

PLI Power PC Compatible Quick SCSI F Nubus Card	500
Great for desktop publishing.	
Atto Silicon Express Fast SCSI-2	Call
SCSI 1 & 2 support, transfer rates up to 10.0 MB/sec, supports multiple block sizes, takes advantage of parallel processing capability. Ideal for graphic design, multimedia applications and more!	

### Hard Drive Cabinets

Zero Footprint MicroCab	\$75
Full Height Multi Bay Cabinets	\$89
Two, four, six, and eight bay cabinets available. All cabinets come with a 25-50 pin Mac system cable and a power cable. 1 year warranty on all cabinets.	\$139

### Memory Products

Memory	Centris, LCIII, Quadra	Powerbook Memory
2x8x80	4MB 60/70ns	520,520c,540,540c
4x8x80 60/70ns	8MB 60/70ns	4MB,8MB,16MB,32MB
4x8x80 FX	16MB 70ns	140,170,160,165c,180,180c,Duos
16x8x80 Low Profile	32MB 60ns	4MB,6MB,8MB,10MB
16x8x80 FX	VRAM 256K/512K	12MB,14MB,20MB

Lifetime warranty on all memory products!!!

Call for the most competitive pricing on Memory!!!

### Look for the ProCare symbol

- YOUR CHOICE OF A DOUBLE SHIELDED 25/50 PIN SYSTEM CABLE OR A 50/50 PIN DASHY CHAIN CABLE WITH THE PURCHASE OF ANY EXTERNAL DRIVE
- 30 DAY MONEY BACK GUARANTEE ON ALL HARD DRIVES
- SAME DAY SHIPPING ON MOST PRODUCTS ADVERTISED!
- KNOWLEDGEABLE SALES STAFF AND TECHNICAL SUPPORT STAFF

# ProDirect 800-524-9952

Fax 24 hours a day 612-941-1109  
International orders call 612-941-1805  
In Minnesota call 612-941-1805

All prices are subject to change without notice. Refused orders are subject to a restocking fee. International customers pay all shipping charges. All shipping charges are non-refundable. To return merchandise call for an RMA number. All RMAs must be returned within 10 business days of issuance. Customers are responsible for shipping charges to return product



Business Hours  
8:00am-7:00pm (CST) Mon.-Fri.

ProDirect, Inc. 6824 Washington Ave. South  
Eden Prairie, MN 55344

Circle 135 on reader service card



- Low price guarantee!
- Selling quality drives at incredibly low prices Since 1987.
- 30 Day money back guarantee.
- Fast service. Most orders shipped same day!
- Lifetime technical support.
- 24 Hour turnaround, 1 year replacement policy.
- Friendly, helpful staff. We appreciate your business!

## OPTICAL DRIVES

### 230MB FUJITSU

- Read and write 128 or 230MB disks
- DynaMo drive in portable size case.

External only \$799 1 free disk

### 1.3 Gig NEC

- Read and write 650MB or 1.3Gig disks
- 2 Year warranty! 1MB data buffer.

External only \$1839 1 free disk

### 1.3 Gig Maxoptix

- Read and write 650MB, 1Gig or 1.3Gig disks
- 4MB data Buffer. 1 year warranty.

External only \$2299 1 free disk

## RAIDTEC DISK ARRAYS

- Just say NO to software driven arrays!
- Hardware driven arrays are much faster!
- Software arrays may require an upgrade if you upgrade your operating system.
- RaidTec SCSI to SCSI disk arrays support any computer and any operating system.
- Available in unlimited capacities in most RAID levels. Call our professionals for a quote on one of these quality solutions.
- 2 Gig Striped from \$2099
- 2 Gig Mirrored from \$2999

## PIONEER

### EXTERNAL CD ROM CHANGERS

6 Disc	2X	300ms	DRM602X	\$409
6 Disc	4X	300ms	DRM604X	\$989
18 Disc	4X	300ms	DRM1804X	\$1899

## ATTENTION: POWER MAC OWNERS

### Power HD

- New 6100 ZFP case fits perfectly under your Power Mac 6100. Holds up to 4 drives.

## 2.5" Powerbook Drives

Size	Speed	RPM	Brand	Price
240MB	14ms	4500	Fujitsu	\$255
256MB	17ms	4500	Quantum	\$272
514MB	17ms	4500	Quantum	\$435

## Quantum

### #1 HARD DRIVE FOR MAC!



Capacity	Speed	RPM	Buffer	Wty	Model	Internal	External
365MB	11ms	4500	128K	2yr	LT365S	\$189	\$249
540MB	14ms	3600	128K	2yr	MV540S	\$234	\$294
541MB	11ms	4500	128K	2yr	LT540S	\$249	\$309
731MB	11ms	4500	128K	2yr	LT730S	\$265	\$325 <b>BEST BUY!</b>
1080MB	9.5ms	5400	512K	5yr	EMP1080S	\$550	\$599
2140MB	8.6ms	7200	512K	5yr	GP2140S	\$1019	\$1119
2160MB	9.5ms	5400	512K	5yr	EMP2160S	\$909	\$969
4280MB	8.6ms	7200	512K	5yr	GP4280S	\$1829	\$1929

MegaHaus is your #1 source for Quantum drives.

- Low price guarantee on all Quantum drives!
- Same day shipping on most orders!



## SyQuest

Genuine Syquest cartridges Qty 4-9 / 10+ or with drive.

44MB	\$42	\$40
88MB	\$47	\$45
105MB	\$53	\$50
200MB	\$76	\$71
270MB	\$59	\$56

Capacity	Speed	Compatible	Model	Buffer	Internal	External
88MB	20ms	44, 88MB	SQ5110C	32K	\$285	\$345
105MB	14.5ms	105MB	SQ3105S	64K	\$249	\$309
200MB	18ms	44,88,200MB	SQ5200C	64K	\$419	\$479
270MB	13.5ms	105, 270MB	SQ3270S	128K	\$409	\$469

MegaHaus is your #1 source for Syquest drives.

- Low price guarantee on all Syquest drives!
- 1 FREE cartridge with each drive!
- 2 year warranty on drive and case!
- 5 year warranty on all cartridges!
- Same day shipping on most orders!

## FUJITSU

**BEST BUY!**

Capacity	Speed	RPM	Buffer	Wty	Model	Internal	External
530MB	13.8ms	4500	256K	2yr	M2684S	\$209	\$269
1080MB	9.5ms	5400	256K	5yr	M2694S	\$490	\$550

FUJITSU OFFERS THE BEST VALUE ON THE MARKET!

- Low price guarantee on all Fujitsu drives!
- THESE PRICES ARE NOT MISPRINTS!

## MICROPOLIS

Capacity	Speed	RPM	Buffer	Wty	Model	Internal	External
2050MB	8.5ms	7200	512K	5yr	MC4221	\$899	\$999 <b>SALE!</b>
4294MB	8ms	7200	512K	5yr	MC3243	\$1479	\$1579
9100MB	12ms	5400	512K	5yr	MC1991	\$2549	\$2649

Micropolis is THE high performance drive for your Mac!

- Low price guarantee on all Micropolis drives!
- Add \$100 for A/V version of drives. WIDE SCSI call.

## Seagate

Capacity	Speed	RPM	Buffer	Wty	Model	Internal	External
1050MB	9ms	5411	512K	5yr	ST31230N	\$549	\$609
2147MB	9ms	5411	512K	5yr	ST32430N	\$955	\$1015
2147MB	8ms	7200	512K	5yr	ST32550N	\$1015	\$1115
4290MB	9ms	5400	512K	5yr	ST15230N	\$1455	\$1515
4290MB	8ms	7200	1024K	5yr	ST15150N	\$1699	\$1799
9090MB	11ms	5400	1024K	5yr	ST410800N	\$3049	\$3149

Seagate offers incredible performance and durability.

- Low price guarantee on all Seagate drives!

## CD ROM DRIVES

Brand	Model	Speed	Transfer	Buffer	Internal	External
Sanyo	SH93R	280ms	330KB/sec	256K	\$149	\$219
Toshiba	XM3501	155ms	600KB/sec	256K	\$309	\$379 <b>BEST BUY!</b>

## TAPE DRIVES

Complete external DAT drive includes Retrospect 2.1, 1 tape, terminator, and cable.

2Gig DDS DAT	WangDat \$769 <b>BEST BUY!</b>	Hewlett Packard \$879	Conner \$949
4-8Gig DDS-DC DAT	WangDat \$899	Hewlett Packard \$999	Conner \$989
4-10Gig DDS-2 DC DAT	WangDat \$989	Hewlett Packard \$1169	Conner \$1079

OPTIMA DeskTape Software mounts DAT tape drive on your desktop to use as a standard drive! \$275



M-F 8-8 Sat 9-3 Central  
Local (713) 333-1910  
Fax (713) 333-3024  
TTY (Deaf Line) 1-800-473-0972  
No international orders accepted.

CODE MW05



2201 Pine Drive  
Dickinson, Texas 77539

Prices and specifications subject to change. Some exceptions may apply to low price guarantee. All trademarks are registered trademarks of their respective companies. Returns must be in new condition, and may be subject to restocking fee. Shipping is not refundable. Personal checks held for clearance.



# Save Your Work (And Your Money) On Spin Cartridges!



## Introducing the tough, inexpensive SyQuest™ compatible cartridge from Spin.

Now there is a new, less expensive choice in removable media. Constructed of the strongest, most advanced materials available, Spin cartridges deliver unsurpassed reliability. Manufactured under license from SyQuest Technologies, each cartridge is completely compatible with your 44MB, 88MB, and 200MB 5.25" removable drives.

"All the cartridges are equally tough... When deciding among cartridges based on different technologies, examine your budget."

- MacUser July, 1994

To further insure your satisfaction, we offer the protection of a 30-day money back guarantee, an unconditional 6-year warranty, and toll-free technical support. Both the 44MB and 88MB cartridges are in stock and ready to ship overnight.



BERNOULLI



DAT



OPTICAL



SYQUEST

### SPIN CARTRIDGES OFFER YOU:

- ✓ Unsurpassed Reliability
- ✓ Full 6-Year Warranty
- ✓ Immediate Availability
- ✓ Overnight Delivery

✈ **\$5.00 OVERNIGHT SHIPPING** ✈  
**FOR ANY ORDER UP TO 5 POUNDS!**

Spin will ship any order to you overnight for just \$1.00 per pound, with a \$5.00 minimum. If your order is over 21 pounds your price per pound goes down.

✓ Toll Free Tech Support  
✓ 30-Day Money Back Guarantee  
**FAX: 1-617-630-1201**  
**TEL: 1-617-630-1200**



**Spin**  
**PERIPHERALS**

381 Elliot Street, Newton Upper Falls, MA 02164

# ORDER DIRECT: 1-800-215-9200



Easy to Use  
Backup  
Solution!

**\$499!**  
Including Cartridge!



### QuickTape

Our new tape drive is the affordable backup storage solution. Easy to use and highly reliable, the Spin QuickTape will secure your valuable data faster than a 2GB DAT drive. Based on the new Tandberg mechanism, the drive can use 1GB QIC-Wide cartridges. Delivered with Cheyenne five-user backup software package and one cartridge.

QuickTape \$499 Cartridge \$19



Add more tapes for inexpensive, daily backups.



## Welcome to Spin Peripherals.

Spin supplies the best drives available so your business moves faster than the world around you. We deliver the speed and dependability you need, and our exceptional customer service team will be there when it seems the world is about to catch up. But don't worry, it won't.



Retrospect backup software included.



### DAT Drives

Before disaster strikes, secure your valuable data with a Spin DAT drive. The low cost 3100 stores 2GB while the 3400 packs up to 8GB for remote backups and large audio, video and graphics files. All DAT drives include one tape cartridge and Retrospect™ for easy, complete backups.

Spin 3100 (DDS)	\$799
Spin 3200 (DDS-DC)	\$979
Spin 3400 (DDS-2)	\$999



### Optical Drives

Spin's 3.5" Olympus 128MB is the affordable solution to securing your data while the 230MB and 5.25" Maxoptix 1.3GB optical drives set the standard for speed and capacity. Great for backups, archiving, and as a secondary drive. One cartridge included.

Olympus 128MB	\$599	Cartridge \$26
Olympus 230MB	\$799	Cartridge \$39
Maxoptix T4 1.3GB	\$1999	Cartridge \$85



### Spin CD-ROM Drives

Spin's 2x and 4x Multisession CD-ROM drives deliver the excitement of multimedia to your desktop. Enhance either drive with Spin's CD-ROM bundle, including speakers, headphones, CD-ROM titles and more!

Spin 2x Drive with Bundle	\$299
Spin 2x CD-ROM Drive	\$199
Spin 4x Drive with Bundle	\$499
Spin 4x CD-ROM Drive	\$399



New  
Lower  
Price!

### SmartTerm

The latest in Macintosh termination technology, SmartTerm's DCR Active Termination ensures data integrity and maximizes SCSI performance. Online status indicators monitor activity and isolate system freezes, while gold connectors provide excellent conductivity. SmartTerm is a smart investment for any Macintosh user.

SmartTerm Active Terminator \$49



### PowerBook Drives

Spin 2.5" drives are fast, easy to install, and offer the capacity you need when you are on the road.

Quantum 127MB	\$219
Quantum 170MB	\$279
Quantum 256MB	\$299
Quantum 341MB	\$349
Quantum 514MB	\$449

✈ **\$5<sup>00</sup> OVERNIGHT SHIPPING FOR ANY ORDER UP TO 5 LBS!** ✈  
Spin will ship any order to you overnight for just \$1.00 per pound, with a \$5.00 minimum.  
If your order is over 21 pounds your price per pound goes down.

**ORDER DIRECT: 1-800-215-9200**





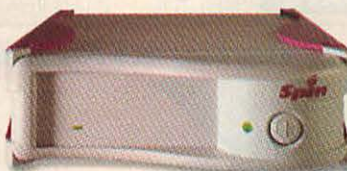
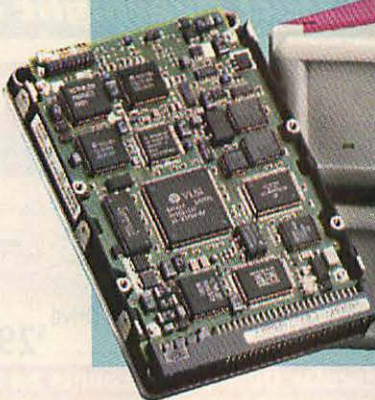
## Spin 1021 Hard Drive

MacUser Labs called the Spin 1021 "the fastest drive in this category [1.0 - 1.6GB]... a killer." Better yet, these kind words were written before Spin introduced the stackable Tornado enclosure with DCR Active Termination and a front-mounted power switch. And with our incredibly low prices, these drives will be moving faster than ever.

CAPACITY	INTERNAL	EXTERNAL
Spin 1021 1.0GB	\$499	\$599



4 1/2 mice rating  
for our Spin 1021  
hard drive!



## ATTO Boards

Video, prepress and other storage-intensive applications benefit substantially from this SCSI-2 BusMaster accelerator that parallel processes with the Mac's CPU. The Silicon Express IV uses RISC technology to push the latest drive mechanisms to their limits.

SE IV with RAIDLine!	\$995
SE IV with Drive Purchase	\$895

**\$399!**  
Including Cartridge!



## Bernoulli Drives

Continuing the Bernoulli tradition of rugged dependability, the Spin 230MB cartridge drive provides unlimited capacity with additional cartridges. Featuring DCR Active Termination and a full five year warranty, the 230MB drive is backwards compatible with older cartridges. One cartridge included.

Bernoulli 230MB	\$399	Cartridge	\$89
		3-Pack	\$199



MacUser recommends  
our Spin 1021 and  
Spin 2149!



The best products. Reasonable overnight shipping.  
Overall value. So go ahead, take a Spin and enjoy.

Starting At  
**\$499!**  
For A Limited Time

Award  
Winning  
Performance!

## Hard Drives

Our external Tornado drives boast a 40 watt power supply, DCR Active Termination, a front mounted power switch, and interlocking feet for stable stacking. Internal drives take minutes to install.

CAPACITY	INTERNAL	EXTERNAL
Quantum 170MB	\$139	\$239
Quantum 365MB	\$199	\$299
Quantum 540MB	\$249	\$349
Quantum 730MB	\$279	\$379
Quantum 1.0GB	\$599	\$699
Micropolis 2.1GB AV	\$1199	\$1299
Micropolis 4.3GB AV		\$2399
Seagate Hawk 2.1GB	\$1349	\$1449
Spin 1021 1.0GB	\$499	\$599
Spin 2149 2.1GB	\$1199	\$1299

## SyQuest Drives

Spin SyQuest™ 3.5" and 5.25" removable drives accommodate your expanding storage needs without slowing you down. The new 200MB and 270MB continue the SyQuest reputation for convenience and reliability at higher speed and capacity. Small, lightweight cartridges are easy to transport and store.

SyQuest 44MB	Cartridge	\$43
SyQuest 44/88MB	Cartridge	\$48
SyQuest 200MB	Cartridge	\$79
SyQuest 105MB	Cartridge	\$56
SyQuest 270MB	Cartridge	\$65



4 1/2 mice rating  
for our SyQuest  
200 and 270!

✓ Toll Free Tech Support  
✓ 30-Day Money Back Guarantee  
**FAX: 1-617-630-1201**  
**TEL: 1-617-630-1200**



**Spin**  
PERIPHERALS  
381 Elliot Street, Newton Upper Falls, MA 02164

**ORDER DIRECT: 1-800-215-9200**

Circle 248 on reader service card

MACWORLD May 1995 191



# MacWAREHOUSE®

Over 1,900 products for your Mac! **Overnight delivery only \$3.00!**

## QuarkXPress 3.3.1

for as low as

**\$589**

QuarkXPress 3.3.1  
Ask for item # DTP0110  
Only .....

**\$589**

Power  
Macintosh  
Required!

QuarkXPress for Power Mac  
Ask for item # DTP0122 **\$659<sup>95</sup>**  
Comes on CD-ROM—no disks included.

## SyQuest BLOWOUT! POWER USER

Get an 88C MB Removable SyQuest Drive

Reads  
and writes  
both 44MB  
and 88MB  
Cartridges!

88C MB Power User Removable SyQuest Drive  
DRI 0910.....

**\$299\***

for as low as  
**\$299!\***

\*Cartridge  
not included.

**Spectacular Quantity Discounts on SyQuest Removable Cartridges!**

Buy more and SAVE!	Item #:	Description	Qty. 1-4	Qty. 5-9	Qty. 10+
	MED 0035	44MB Removable Cartridge	\$59.95	\$54.95	\$49.95
	MED 0071	88MB Removable Cartridge	\$64.95	\$59.95	\$54.95
	MED 0146	200MB Removable Cartridge	\$89.95	\$84.95	\$79.95

## Screaming Fast 14.4 Fax/Modem

NEW  
LOW  
PRICE!

**ONLY  
\$89<sup>95</sup>!**

Manufactured  
under license by  
**Hayes!**  
Communication  
software included.  
Ask for item #  
MOD 0183

## TaskForce

CLIP ART FOR MACINTOSH

**1000 images**

Publisher: New Vision Technology

**ONLY  
\$54**

Ask for item # GRA 0978  
CD-ROM and diskettes included.

## UPGRADE NOW!

Microsoft OFFICE 4.2.1  
Upgrade only **\$239\***

PLUS get  
**FREE!**

**OFFICE FUN PACK™**  
Includes these 5 great titles:  
VETTE!  
Marian Sports  
The Chessmaster 3000  
WORDTRIS  
U.S. Atlas

Microsoft Office 4.2.1 Upgrade  
Ask for item # BND 0605

Microsoft Office 4.2.1 Full Version  
Ask for item # BND 0604...\$475

\*Price reflects \$40 rebate direct from Microsoft.  
Price before rebate is \$279. Offer expires 8/31/95.  
Proof of ownership required. Call for details.

\*\*Games shipped in promotional packaging.

SoftKey  
**ONE  
STOP  
CD-SHOP**

Get 10 CDs  
for one low,  
low price!

- ✓TIME's Man of the Year
- ✓Instant Calendar
- ✓Who Killed Sam Rupert?
- ✓Dinosaur Safari
- ✓Parenting
- ✓Key Gourmet
- ✓Key Clipmaster 5000
- ✓Key Fonts
- ✓Key Photo Clips
- ✓Wild Places

all for  
only **\$29<sup>95</sup>\***

\*Shipped in promotional packaging. Ask for item # BBD 0177

**DOUBLE  
YOUR RAM!**

for Only  
**\$55!**

**RAM  
DOUBLER**

Doubles  
your Mac's  
memory without  
additional  
memory boards!

Ask for item # UTI 0486

Upgrade to  
**FREEHAND 5.0**

for only **\$149\***

Ask for  
item #  
UPG 0143



\* Upgrade from 4.0 or earlier. Proof of  
ownership required. Serial number required  
for installation. Call for details.

## Treasure Pack

Ten full-length CD-ROMs for  
one great low price!

- Clip Art Novice
- CD-Fun House 9.0
- Gallery of Dreams: Surreal Imagery
- Font Pro Volume 1: The Essentials
- Photo Pro™ Vol. 3: FotoBank
- Photo Pro™ Vol. 8: Flowers!
- SuperToons™
- QuickToons™ 1: Cartoon Classics
- Newsbytes™ 1994 Edition
- Washington Times & Insight 1994 Edition

Ask for item #  
EDU 0847  
**ONLY  
\$29<sup>95</sup>**

Publisher:  
Wayzata  
Technology

**3 exciting games  
from Axis!**

**Cryptic**  
Ask for item # ENT 0786  
**\$29<sup>95</sup>**

**Macao**  
Ask for item # ENT 0785  
**\$29<sup>95</sup>**

**Hex Ya!**  
Ask for item # ENT 0787  
**\$29<sup>95</sup>**

Order toll-free 24 hours a day, 7 days a week! **1-800-255-6227**



# The Mac SuperStore™

Authorized Apple Reseller

## Adobe Photoshop 3.0

upgrade only  
**\$149\***

**Includes 2 FREE CD-ROMs!**

The **FREE** Photoshop CD includes: stock photography, user tutorial, Adobe Acrobat Reader 1.0, and more!

The **FREE** Adobe Type on Call CD includes: Adobe Type Reunion, over 2,000 encrypted fonts, Adobe ATM, and more!  
**Adobe Photoshop 3.0 Upgrade\*** \$149  
**UPG 0138**  
**Adobe Photoshop 3.0 Full Version** \$559  
**GRA 0916**

\* Proof of ownership required. Call for details.

## Ultra-compact, 100MB removable Iomega Zip Drive!

Only **\$199<sup>95</sup>!**

**Stores 100MB on one 3.5" cartridge!**  
**Ultra-compact size transports easily!**  
**Unlimited storage capacity!**  
**Ask for item # DRI 1050**

**Extra 100MB Removable Disks:** MED 0165  
 1-4 \$19.95 ea. 5-9 \$17.95 ea. 10+ \$14.95 ea.

## Now, get a new Power User Triple-Speed CD-ROM DRIVE

exclusively from MacWAREHOUSE for only

**\$199!**

Ask for item#  
**BND 0507**

**PLUS**

## Get the NEW! 1995 Grolier Multimedia Encyclopedia on CD-ROM!

**POWER USER Triple Speed Multi-session CD-ROM Drive Kit**  
**BND 0507** ..... **\$199**

**The 1995 Grolier Multimedia Encyclopedia plus The Animals! FREE**  
**BFE 0017** ..... **\$79<sup>95</sup>**

**The 1995 Grolier Multimedia Encyclopedia with The Animals! and Atlas Pack FREE**  
**BBD 0162** ..... **\$79<sup>95</sup>\***

\*with the purchase of a CD-ROM drive from Mac, Micro or CD-ROM Warehouse within the last 90 days.

**2 BONUS CD-ROMs!**

1. **THE ANIMALS!**  
 2. **WORLD & US ATLAS PACK**  
 \*with purchase of Grolier Encyclopedia and CD-ROM drive (total: \$278.95)  
 Products shipped in promotional packaging.

## ORDERING INFORMATION

To order, call toll-free

**1-800-255-6227**

(1-800-ALL-MACS)

**Call 24 hours a day, 7 days a week.**

Inquiries: 908-367-0440 FAX Your Order to: 908-905-9279

Compuserve Code: GOMW

**NEW! Express Customer Service Number:**

**1-800-925-6227**

**MacWAREHOUSE**  
 1720 Oak Street • P.O. Box 3031 • Lakewood, NJ 08701  
 ©1995 Micro Warehouse Inc.

- All major credit cards accepted. No surcharge.
- Your credit card will not be charged until your order is shipped.
- If we ship a partial order, we pay the freight on the remaining portion.
- All U.S. shipments are insured at no extra charge.
- C.O.D. orders accepted (add \$6.00 including shipping) - \$1,000 maximum.
- All products are covered by a 120-day limited warranty. Defective software replaced immediately. Hardware replaced or repaired at our discretion.
- Some products may have system requirements. Call for details.
- Sales tax: CT residents add 6%, NJ residents add 7%, Ohio residents add applicable tax.

### SHIPPING

- All orders add \$3.00 per order. We ship Airborne Express overnight unless UPS Ground delivers overnight. (Some rural areas require an extra day.)
- Orders placed by 12:00 MIDNIGHT (EST) (weekdays) for "in-stock" items ship same day (barring system failure, etc.) for overnight delivery.
- C.O.D. orders ship via UPS (Blue Label) if you are more than 2 days from us via UPS Ground. Charge is \$6.00 including shipping.
- Alaska, Hawaii, outside continental U.S., APO/FPO call 908-367-0440 for information. Some products are not available outside the U.S.
- We regret that we cannot be responsible for typographical errors.
- For faster service for existing customers, our computers recognize incoming calls by the telephone number and instantly locate your records.

©Copyright 1995 Micro Warehouse, Inc. MacWAREHOUSE® is a division of Micro Warehouse, Inc. MacWAREHOUSE® and MicroWarehouse® are registered trademarks of Micro Warehouse, Inc. Item availability and price subject to change without notice. Apple, the Apple logo, Mac and Macintosh are registered trademarks of Apple Computer, Inc.

Circle 150 on reader service card

## 2 FREE BONUSES!

**1**

**The Power User's Tool Kit** ... a collection of powerful programs compiled exclusively for MacWAREHOUSE customers. Some of the programs are shareware, so you can try them free of charge—some authors ask that you pay a small fee (\$8-\$25). Most programs, though, are **absolutely FREE**. The Power User's Tool Kit is **FREE when you order from MacWAREHOUSE**.

You pay only \$2.00 shipping and handling. Ask for Item # AAA 0124. All programs work with System 7, six are designed to add new features only to System 7. Check the box below if you would like to order the Power User's Tool Kit.

**FREE!**

**2**

### Full-Year Subscription...

to your choice of MacWAREHOUSE, MicroWAREHOUSE, Data Comm WAREHOUSE (networking products), or CD-ROM WAREHOUSE catalog. Just fill in and mail the coupon below. We'll start your free subscription to the catalog with the next issue. Check the box below for your free subscription.

### FREE CATALOG SUBSCRIPTION

**MW0595**

Check the appropriate box(es) to receive your FREE 1-year subscription and mail this coupon to:  
 1720 Oak Street, P.O. Box 3031, Lakewood, NJ 08701

Name \_\_\_\_\_

Address \_\_\_\_\_

Apt. \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

Zip \_\_\_\_\_

(Expect to receive your first issue within 4-6 weeks.)

☐ Yes, send me my FREE Power User's Tool Kit.  
 Enclosed is my check for \$2.00 to cover shipping and handling.

☐ **MacWAREHOUSE®**

☐ **MicroWAREHOUSE®**

☐ **Data Comm WAREHOUSE™**

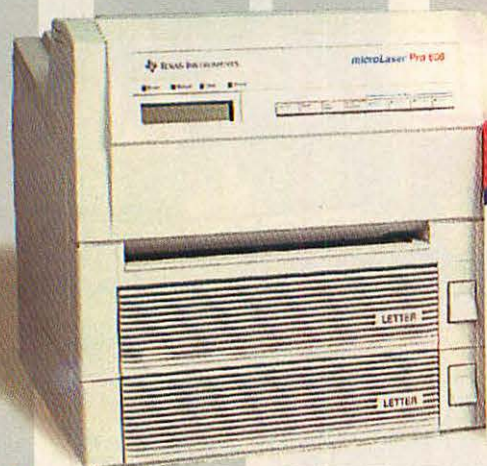
☐ **CD-ROM WAREHOUSE™**





QuarkXPress 3.31 (68K) \$559

QuarkXPress 3.31 (PPC) \$629



TI microLaser 600 \$919

TI microLaser Pro PS23 \$1198

1MB TI Upgrade \$89 • 2MB \$159 • 4MB \$278

PowerBook 540c \$3399

Call for Complete Macintosh System Pricing

**UMAX**  
The Magic of Color™



Vista S8 LE .....	882
UC630 LE .....	588
Vista S6 LE .....	749
UC840 MacPro .....	885
UC1260 MacPro .....	1129
Transparency Adapter .....	449
PowerLook .....	3165

**UMAX 1260 \$1129**



**Magic  
Memory**



1MB 30pin 120ns .....	25
2/4MB 30pin 80ns .....	80/137
4MB 72pin 60/70/80ns .....	from 154
8MB 72pin 60/70/80ns .....	from 299
16/32MB 72pin .....	489/1100
LC/Quadra VRAM .....	29/19
PowerMac Level II Cache Card .....	149

**16 MB SIMM \$489**



**GLOBAL VILLAGE  
COMMUNICATION**



Teleport Mercury .....	269
Teleport Gold II .....	125
Powerport Gold .....	239
Powerport Mercury .....	315
Powerport Mercury PB500 .....	348
Powerport Duo Mercury .....	319
OneWorld Fax Server .....	864

**Teleport Mercury \$269**



**Attention Power Macintosh Owners!**  
PowerClock™ accelerates CPU performance by 40%. User installable in seconds. Clips in place. Total compatibility. 30 Day MBG.

PowerMac 6100 to 84MHz .....	119
PowerMac 7100 to 84MHz .....	119
PowerClock Level II Cache .....	185

**NEW! Power Mac Accelerator**  
Supports New Performa 61xx Series

## SYSTEMS

Call for latest prices!

PowerPC 6100/66 .....	*1649
PowerPC 7100/80 .....	*2639
PowerPC 8100/100 .....	*3289
PowerPC 8100/110 .....	*5659
Powerbook 540c 4/320 .....	4079
Quadra 630 .....	1125
Powerbook 150 .....	1415
Performa Series .....	Call

\* With complete system purchase.

## DGR Ext Keyboard



105 key full featured extended keyboard for Macintosh. Fully ADB compatible.

**\$59**

**DGR  
Technologies**

## PowerBook Upgrades

160 to 180 .....	399
145 to 170 .....	129
140 to 180 .....	399
140 to 170 .....	299

## INPUT/OUTPUT

### Wacom

Artz .....	289
Artpad .....	148
12x12 RM .....	509

### Keyboards/Mice

DGR Extended Keyboard .....	59
Kensington Turbo Mouse .....	99
Apple Design Keyboard .....	87
Apple Adjustable Keybd .....	120

## NETWORKING

### Asanté

10BaseT Hub 8 Port .....	199
10BaseT Hub 12 Port .....	399

### Farallon

Etherwave Adapter .....	179
-------------------------	-----

## Etherwave Transceiver .....

99

## NEW! Magic EtherNet

aaui Transceiver 10BaseT .....	39
aaui Transceiver thin .....	39
Magic 8 port Hub .....	139

## PRINTERS

### Apple

Laserwriter Select 360 .....	1415
------------------------------	------

### Hewlett Packard

Deskwriter 320 .....	343
Deskwriter 540 .....	325

## VIDEO SOLUTIONS

### Apple

Apple 15" Monitor .....	515
Apple 17" Monitor .....	995

### NEC

Multisync XE15 15" .....	575
Multisync XE17 17" .....	1060
Multisync XE21 21" .....	2095
Multisync XP17 17" Prof .....	1295
Multisync XP21 21" .....	2588

## Media for SyQuest

44MB Removable Cart .....	36
88MB Removable Cart .....	43

## Nomai



## Media for SyQuest

44MB Removable Cart .....	36
88MB Removable Cart .....	43

## Deskwriter 560c .....

559

## Laserjet 4ML w/toner .....

1075

## Laserjet 4MP w/toner .....

1395

## Texas Instruments

microLaser PowerPro .....	1635
microLaser Pro PS65 .....	1525
microLaser Pro PS23 .....	1198
microLaser 600 .....	919
microLaser Pro E .....	1369
microWriter PS23 .....	625
Toner PS65/23 .....	165

## VIDEO SOLUTIONS

### Apple

Apple 15" Monitor .....	515
Apple 17" Monitor .....	995

### NEC

Multisync XE15 15" .....	575
Multisync XE17 17" .....	1060
Multisync XE21 21" .....	2095
Multisync XP17 17" Prof .....	1295
Multisync XP21 21" .....	2588

## NEC 2V 14" Value Color ...

359

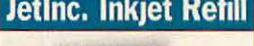
## NEC 3V 15" Value Color ...

499

## Radius/SuperMac

IntelliColor 20e .....	1875
Precision Color 17" .....	999
StudioArray 4GB RAID .....	5599
Two Page Display 20gs .....	789
Two Page Display 21gs .....	975
Pressview 21T .....	3199
SuperMatch 17T .....	883
Thunder/24GT .....	1436

## JetInc. Inkjet Refill



2pk Blk/Color .....	15.99/9.99
2pk High Capacity Blk .....	19.99
500/50/60c/310 8pk .....	55.95
Color StyleWriter 1pk Blk .....	5.95

**BOTTOM LINE 24-HOUR INTERNATIONAL SALES FAX (512) 892-4455**



Bottom Line Distribution is committed to the needs of the international Macintosh user and reseller. We offer discounted rates with DHL, UPS International and Airborne Express. Delivery times to most countries is 2 to 3 days. We stock 220v versions of most hardware. Dealer inquiries are welcome. Language interpreters are available. Se hace pedidos internacionales. Nous acceptons des commandes internationales. Internationale Handlerkonditionen



Domestic: sales@dgr.com  
Surf over to <http://www.dgr.com/>

International: world@dgr.com  
and win a new Mac computer!

**1-512-892-4070**

4544 S. Lamar Blvd., Ste 100, Austin, TX 78745



Wacom 12x12 RM \$509  
Wacom ArtPad/ArtZ \$148/\$289

Radius IntelliColor 20e \$1875  
Thunder IV GX 1152 \$2052



Fractal Painter 3.0 \$299



Media Blowout!

SyQuest Media  
SQ44.....\$43  
SQ88.....\$49  
SQ 200.....\$79  
SQ 270.....\$63

Optical Media  
128 Opt.....\$25  
230 Opt.....\$35  
256 Opt.....\$59  
1.3Gb Opt.....\$89



Supra Express 14.4 Plus .....98  
Supra FaxModem 14.4.....179  
Supra FaxModem 14.4LC.....136  
Supra v.32bis PB 14.4 Internal...169  
Supra FaxModem 28.8.....229  
Supra PB 28.8 Internal.....317

Supra FaxModem 28.8 \$229

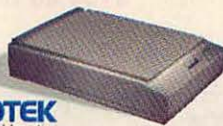
radius



PrecisionColor Pro 24X .....925  
VideoVision Studio 2.0.....3449  
Photo Engine.....799  
IntelliColor 20e.....1875  
Thunder IVGX 1600.....3038  
Thunder IVGX 1360.....2399  
Thunder IVGX 1152.....2052

Intellicolor 20e \$1875

MICROTEK  
Enter Images Through Innovation.



Scanmaker IIhr.....1045  
Scanmaker IIsp.....745  
Scanmaker IIxe.....869  
Scanmaker III.....2489  
III Transparency Adapter.....136  
35T Slide Scanner.....953  
45T Slide Scanner.....5399

ScanMaker IIhr \$1045



Magic 1 1/2

230 Optical Drive.....699  
1.3GB Optical Drive.....1899  
270 SyQuest.....399  
200 SyQuest.....419  
128/230MB Optical Carts.....24/35  
256 MB Optical Cartridges.....59  
1.3GB Optical Cartridges.....89

Magic 768MB RAM Drive \$599  
The ultimate drive for Photoshop!

Sony

20" Multiscan GDM-2036s 1929  
17" SE Trinitron .....989

RasterOps

Prism .....625  
Prism GT .....925  
Targa 2000 .....4395

ACCELERATORS & CACHE  
Daystar

PowerPro Accelerators -  
66MHz 601 Mac IIci .....1248

66MHz PowerCard 601...1498  
80MHz PowerCard 601...1998  
Fast Cache 1MB Cache...498  
68030 Accelerators -  
40MHz Turbo (68040)...949  
DiIMO  
DiIMOCache 128K.....129  
DiIMOCache w/FPU 128K.210  
DiIMOCache 50MHz.....439  
DiIMOCache 50MHz w/FPU518

Magic

PowerClock 6100/6150...119  
PowerClock 7100.....119  
PowerClock Level II Cache 185

DRIVES & TAPES

FWB

Jackhammer(with 2 drives).....549  
All other FWB Raid's.....call

Magic

768MB RAM Drive.....599  
2GB External.....1149

1GB External.....699  
2GB RAID.....2049  
4GB RAID.....2946  
2GB Tape w/Retrospect...675

SCANNERS

Agfa

Studio Scan II .....865

UMAX All models.....call

Hewlett-Packard

ScanJet IIcx.....919

DiIMO



DiIMOCache '040 50MHz  
Accelerator with 128K cache  
for Quadra and Centris \$799

Nikon

Coolscan Slide Scanner...1360

Polaroid

Sprint Scan.....1999

CD-ROM

Fastest, Highest Rated CD's:

DGR Tornado CD Rom .....358

Magic CD Pro.....379

Magic CD Pro 3501 4X.....435

GAMES

Castle Wolfenstein .....38

Marathon 3D.....39

Myst.....49

Warlords II.....45

SOFTWARE

Utilities Software

Adobe Super ATM.....98

Now Utilities 5.0.....83

Quick Keys 3.0.1.....90

Retrospect 2.1.....139

Virex 5.5.....68

Graphics/Word Processing

Adobe Illustrator 5.5.....408

Adobe Photoshop 3.0.....625

Aldus Freehand 5.0 PPC...390

Aldus Pagemaker 5.0.....499

Aldus Persuasion 3.0 PPC 349

MS Word.....329

Business Software

Filemaker Pro 2.1.....99

MS Office 4.2 w/RAM Dblr...475

Quicken 5.0/ In Control.....59

Magic Modems



Fax Modems

Magic 28.8 V.F.C.....139

Magic 14.4 Data/Fax .....99

High Speed Modem Cable 15

TO ORDER FROM BOTTOM LINE: Call 1-800-990-5794. Payment: Visa, Mastercard, Discover & American Express. No surcharge on credit card orders. Tax: Texas residents add 8% sales tax. Prices: Items and prices subject to change and availability. Terms: Net 30 available. Shipping: minimum \$5-UPS Ground, Blue, Red, & Airborne. Returns: All returns must be in original condition and packaging and require an RMA number. Seal must not be opened on software. Returns may be subject to a restocking fee. Original shipping is non-refundable. Direct mail to: Bottom Line Distribution 4544 S. Lamar Blvd., Suite 100, Austin, TX 78745. International Orders: Bottom Line provides the extra level of support international clients require: 24-hour international fax line, 220-volt versions of most hardware, discount rates and customs brokerage available via DHL. 2-3 DAY DELIVERY available to most countries. Bottom Line Distribution cannot be responsible for errors in typography or photography. All brands and product names are trademarks of their respective holders. Local number: 512-892-4070.



**BOTTOM LINE**  
DISTRIBUTION

Fax: 1-512-892-4455

4544 S. Lamar Blvd., Suite 100, Austin, TX 78745

Subscribe to our Internet Specials Mailing List:  
Send mail to online@dgr.com with "subscribe specials" in subject

1-800-990-5794

US and Canada

5/95 MW

Circle 63 on reader service card

MACWORLD May 1995 195





# COMPUTER DISCOUNT WAREHOUSE™

## NEW



### Iomega Zip drive

**Inexpensive, high-capacity data storage**



✓ Capacity: 100MB on single 4.0" Zip disk (200MB compressed)

✓ 29ms seek time, up to 1.25MB/second sustained transfer rate  
✓ Includes Zip Tools™ software for data compression and organization  
✓ Launch and run applications directly from Zip disks, or use for safe backups of important data  
✓ Lightweight, compact and portable: 1 lb, 1.5 x 5.35 x 7.25"  
✓ Macintosh System 7 compatible, includes SCSI system cable  
✓ Warranty: 1 year on drive, limited lifetime on disks

**ONLY**

**\$199.99** CDW 51390

### Zip disks pre-formatted for Macintosh

100MB, single.....	<b>\$22.17</b>	CDW 51397
100MB, 3-pack.....	<b>\$54.95</b>	CDW 51395
100MB, 10-pack.....	<b>\$154.60</b>	CDW 51399

## NEC

## TOP SELLER

### NEC MultiSpin 4Xe Quad-speed CD-ROM drive

✓ 220ms average access time  
✓ 600KB/second data transfer rate  
✓ 256KB buffer for smooth audio/video playback  
✓ Standalone external housing  
✓ Rotating anti-dust door  
✓ Front panel controls and backlit LCD status display



**ONLY!**

**\$479.85** CDW 46741  
**\$39.95** CDW 47781

Macintosh software kit

**800-509-4CDW**



Authorized Catalog Reseller

**MacDeal\$™**  
says: "For all your Macintosh computing needs, call and order your free Macintosh® catalog today!"



**If You Find a Better Price, Call CDW® Before You Buy (800)509-4CDW**

## NASDAQ

**BUY WITH CONFIDENCE**  
CDW® IS A NASDAQ TRADED COMPANY  
TICKER SYMBOL: CDW  
D & B Rated SA1  
Duns 10-762-7952

No Surcharge For Credit Cards



Credit Card charges are not subject to our time of shipment. Freight is calculated on the contents of the order. CDW is not responsible for any loss or damage to goods in transit. The maximum liability for the order total (including materials and labor) will not exceed \$100 per package or \$500 per order. Package insurance is available for an additional charge. CDW is not responsible for any loss or damage to goods in transit. The maximum liability for the order total (including materials and labor) will not exceed \$100 per package or \$500 per order. Package insurance is available for an additional charge. CDW is not responsible for any loss or damage to goods in transit. The maximum liability for the order total (including materials and labor) will not exceed \$100 per package or \$500 per order. Package insurance is available for an additional charge.

## Top-Selling Macintosh® Software

### Adobe

Dimensions V2.0.....	124.79
Illustrator V5.5 + CD.....	375.12
Persuasion V3.0.....	279.51
Photoshop V3.0.1.....	566.79
Premiere V4.0.....	504.15
Streamline V3.0.....	125.90
Super ATM.....	93.99
Type Basics.....	121.45
Type Manager V3.8.....	39.76
TypeSet Values PK.....	39.99

### Aldus

Gallery Effects Vol. 1.....	125.70
Home Publisher V2.0.....	44.51
Pagemaker Plus V5.0.....	561.59
Pagemaker Plus V5.0 upg.....	165.70
Pagemaker V5.0.....	541.35
Aladdin SitCom.....	63.96
Altsys Fontographer.....	248.06
Apple System 7.5 upgrade.....	89.95
Ares Font Hopper.....	39.33
Ares Fontmanager V1.5.....	89.76
Avery MacLabel Pro.....	45.81

### Broderbund

Automap Atlas.....	56.02
Carmen Sandiego/Time.....	29.31
Carmen Sandiego/World DLX.....	39.15
Carmen Sandiego/World DLX CD-ROM.....	43.33
MYST CD-ROM.....	47.47
Prince of Persia.....	29.24
The Printshop Deluxe V1.1.....	46.75
Typesetter V2.0.....	118.55
BestWare MYOB Accounting V4.0.....	90.77
Caere OmniScan.....	295.50

### Clarisc

Clarisc Draw V1.0.....	246.06
ClariscWorks V3.0 w/organizer.....	118.46
FileMaker Pro V2.1.....	89.99
FileMaker Pro V2.1 comp upg.....	111.07
Impact V1.0.....	136.26
MacPaint V2.0.....	79.11



### Microsoft Word V6.0

Upg **\$79.86\*** 45379  
**3.5" \$284.79** 45294  
\*After \$30 manufacturer rebate (ends 8/31/95)

### Connectix

Desktop Utilities.....	55.65
PowerBook Utilities.....	55.50
RAM Doubler V1.5.....	54.32
CA Cricket Graph II V1.5.....	85.33
Caere OmniPage Direct V2.0.....	59.46
Caere OmniPage V5.0.....	297.38
Corel Gallery V1.0.....	32.02

### Dantz

DiskIt Direct V1.0.....	29.72
DiskIt Pro V1.1.....	69.30
Retrospect V2.1.....	135.75

### Delrina

DelrinaFax PRO V1.5.1.....	52.70
Opus & Bill Screen Svr.....	29.60
Dataviz MacLink/PC Connection.....	114.53
Datawatch Virex V5.5.....	59.40
DCA Crosstalk.....	112.53
Delta Point DeltaGraph Pro V3.0.....	125.46
Deneba Canvas V3.5 + CD.....	254.12

### Entertainment

Berkley After Dark V3.0.....	29.72
Berkley Disney Screen Svr.....	27.79
Berkley Star Trek Screen Svr.....	28.21
Comptons King James Bible.....	16.60
Electronic Arts Chuck Yeager.....	35.78
Electronic Arts PGA Tour Golf II CD.....	39.26
Interplay Battleground.....	18.30
Interplay Peter Gabriel XPLOFA 1.....	46.52
Interplay Star Trek 25th Anniversary.....	34.20
LucasArts Loom.....	17.93
LucasArts Secret of Monkey Island.....	19.46
Maxis A Train w/Contract Set.....	29.00
Maxis EL Fish.....	29.00
Maxis SimAnt.....	18.38
Maxis SimCity 2000.....	38.97
Maxis SimCity Classic.....	24.20
Microprose Civilization.....	43.33
Paramount Jump Raven CD.....	38.97
Paramount Lunicus CD.....	39.67
Pygmalion Lament.....	54.07
Sierra Freddy Pharkas.....	23.76
Sierra Hoyle Classic.....	27.97
Sierra Kings Quest VI.....	44.39
Sierra Leisure Suit Larry 5.....	23.76

Spectrum Hole Iron Helix CD.....	56.80
Spectrum Hole Super Tetris.....	39.90
Spectrum Hole Tetris.....	23.05
ST:ING Interactive Tech Manual CD.....	38.97
Velocity Dev Spectre VR.....	34.07
Virgin 7th Guest CD.....	43.10



### Microsoft Excel V5.0

Upg **\$79.88\*** 45378  
**3.5" \$289.49** 49853  
\*After \$30 manufacturer rebate (ends 8/31/95)

### Fractal Design

Dabbler V1.0.....	58.97
Painter V3.0.....	299.98
Sketcher V1.0.....	46.52

Farallon Timbuktu Pro V1.0.....	127.12
Framemaker V4.0.....	539.41
Framereader.....	74.50
FWB Hard Disk Toolkit Personal V1.6.....	49.60
Glyphon Morph V2.0.....	139.26
Hayes Smartcom III V3.4.....	79.66
HSC Kai's PowerTools V2.0.....	102.15

### Insignia

Soft PC V3.0.....	99.81
Soft PC with Windows.....	297.73
Soft Windows Power Mac V1.0.....	302.72
Solutions Pro V3.1.....	193.77

Inline INITPicker V3.0.....	44.20
Intuit Quicken V5.0.....	41.97
Kent Marsh Folderbolt V1.02.....	69.91

### Lotus

1-2-3 V1.1.....	277.73
1-2-3 V1.1 comp upg.....	94.70
1-2-3 V1.1 Server upg.....	98.69
Light Source OFOTO V2.03.....	189.04

### Microsoft

Cinemania 1995 CD.....	49.42
Encarta 1994 CD.....	84.02
Excel V5.0.....	280.49
Excel V5.0 Upg.....	109.88
Flight Simulator V4.0.....	39.38
ForPro V2.6.....	59.88
Office V4.2.....	429.89
Office V4.2 vers upgrade.....	254.79
PowerPoint V4.0.....	288.87
PowerPoint V4.0 upgrade.....	109.84
Project V3.0.....	412.27
Project V3.0 comp upg.....	131.14
Word V6.0.....	284.79
Word V6.0 vers upgrade.....	109.88
Works V4.0.....	84.74

### Macromedia

Director V4.0.....	791.98
Freehand 5.0 comp upg.....	139.26
Freehand V5.0.....	139.26
Macromedia Action Bundle.....	202.10
Now Software Now Utilities V5.0.....	77.37
QuarkXPress PMac V3.3.1 CD.....	659.05
QuarkXPress V3.3.....	569.50

### Ray Dream

AddDepth V1.0.....	98.50
Designer V3.0.....	223.30
JAG II.....	85.06



### Microsoft PowerPoint V4.0

Upg **\$109.84** 45380  
**3.5" \$288.87** 45295

### Symantec

ACT! V2.0.....	156.32
MacTools Pro V4.0.....	92.10
Norton Utilities V3.1.....	95.56
SAM AntiVirus V4.0.....	64.36
Suitcase V2.1.....	51.95
Software Ventures MicroPhone Pro.....	132.14
Bestware MYOB Accounting V5.0.....	72.21
T/Maker Incredible Image Pak.....	79.50

### WordPerfect

WordPerfect V3.1.....	65.22
WordPerfect V3.1 upgrade.....	91.34

**WHY PAY RETAIL? CDW® SELLS FOR LESS AND SERVICES YOU BETTER!**

MacWorld 5/95



## Monitors

### NEC

XV15 15" flat sq.	429.66
XE15 15" flat sq.	539.50
XE17 17" flat sq.	990.43
XE21 21" flat sq.	1979.74
XP15 15" flat sq.	659.49
XP17 17" flat sq.	1236.86
XP21 21" flat sq.	2447.49

### MAGNAVOX

CM2080 24" 29mm	259.29
20CM84 20" 31mm	999.00

### SONY

15sf1 15" Trinitron	439.95
17sf 17" Trinitron	879.46
20sf1 20" Trinitron	1995.00

### Radius

PrecisionColor Display/17 17" full pg.	950.84
SuperMatch 17T 17" color	916.95
Platinum 20" mono full pg.	850.20
IntelColor Display 20e 20"	1629.56
SuperMatch 21T XL	2199.06

### RasterOps

Sweet 16" color full pg.	939.52
20/20 20" color full pg.	1366.01
21" color dual pg.	2319.14

## Graphics/Video Boards

### Radius

PhotoEngine	798.74
Spectrum8 Series III	381.38
Spectrum24 Series IV	804.48
SpigotPower AV	789.83
SuperMatch Calibrator	339.01
Thunder II Light	1709.40
Thunder IV GX 1152	1901.53
Thunder/8	1095.20
Thunder/24 GT	1337.35
Thunder/24	1682.46
Thunder 24 DSP upg.	508.28
VideoSpigot NuBus	364.39
VideoVision Studio V2.0	3409.84
VideoVision Studio V2.0 upg.	1771.94

### RasterOps

24MX 24-bit 2MB	487.99
PaintBoard 8Li 8-bit 1MB	325.41
PaintBoard Lightning 24-bit 3MB	698.80
PaintBoard Turbo 24-bit 3MB XL	783.31
CorrectColor Calibrator	936.52

## Networking

### NASANTE

10THUB 12 port 10BT + AUI/BNC	319.46
10THUB 8 port 10BT - BNC	176.42
AsanteLite LC-10T 10BT	82.98
AsanteLite NB-10T 10BT	105.97
AsanteLite NB-TN Coax	107.85
AsantePrint 1002 APL Bridge AUI/BNC	329.11
FNTRK Transceiver AUI/AUI	64.70
FNTRK Transceiver BNC/AUI	54.66
MC-301E64 Coax	149.57
MC-301E64 10BT	146.75
Mini EN/SC SCSI Combo	264.72
Mini EN/SC10T SCSI 10BT	233.16
EN/SC SCSI Combo	293.76

### Dayna

Daynaport SCSILink Coax	249.95
Daynaport SCSILink PB-T 10BT	269.27
Daynaport SCSILink PB-3 Combo	302.14
Etherprint APL Bridge BNC/AUI	319.00
Etherprint-T APL Bridge RJ45/AUI	318.50
Etherprint-3 APL Bridge BNC/RJ45/AUI	355.40

### FARALLON

EtherWave AAUI Transceiver 10BT	94.47
EtherWave AUI Transceiver 10BT	97.87
EtherWave LC-F Adapt. w/FPU 10BT	169.74
EtherWave NuBus Adapt. 10BT	171.07
EtherWave Adapt. (PwrBk, Classic) 10BT	251.81
EtherWave Printer Adapt. 10BT	252.03
EtherMac SCSI-TP (PowerBook) 10BT	278.74
EtherMac SE-C Combo	144.06
Ether10-T transceiver RJ45/AUI	49.78
Ether10-T transceiver RJ45/AUI	62.61
LocalPath V1.0 8 user	129.22
PhoneNET Connector DIN-8	27.66
PhoneNET Connector DIN-8 10pk	186.23

## Communications/Modems

### Global Village

PowerPort Gold 14.4K	234.69
PowerPort Mercury 19.2K	311.60
PowerPort Mercury Duo 19.2K	311.47
Teleport Gold II 14.4K	266.72
Teleport Mercury 19.2K	272.92
GlobalFax Duo software	75.30

### Hayes

Mac ACCURA 144-FAX144	113.64
Mac OPTIMA 288-FAX144	439.50

### IBM

14.4 external mini-tower w/fax	102.06
28.8 V.34 external mini-tower w/fax	203.53
MacClass PCMCIA 14.4	173.29
MacClass PCMCIA 28.8	327.06

### Supra

Express 14.4	95.40
144LC	129.95
288 V.34	204.63
144PB PowerBook	158.22
288PB PowerBook	266.64

### Robotics

Mac/Fax Sportster 14.4	113.64
Mac/Fax Sportster V.34	248.33

## Storage Systems

Chiron CDA-535 220MB/300KB	296.34
NEC MultiSpin 2V Mac kit	226.07
NEC MultiSpin 4XE	479.85
NEC MultiSpin Mac software kit	39.95
Plexor 4Plex quad-speed Mac kit	513.88

### Imega

Zip drive 100MB SCSI external	199.99
100MB Zip disks, 3 pack	54.95
Bernoulli Transportable 90MB	282.22
Bernoulli Transportable 150MB	423.31
Bernoulli Transportable 230MB	454.44
Bernoulli Insider 230MB	454.44

### PLI

Infinity 88MB Syquest Ext.	415.65
Infinity 105MB Syquest Ext.	383.58
Infinity 270MB Syquest Ext.	539.43

## Magnetic Media

88MB SyQuest cartridge, 5yr	49.79
105MB SyQuest cartridge, 5yr	59.20
200MB SyQuest cartridge, 5yr	78.89
270MB SyQuest cartridge, 5yr	83.57
90MB Imega Bernoulli cart.	91.98
150MB Imega Bernoulli cart.	93.33
230MB Imega Bernoulli cart.	99.81

CDW carries Conner, IBM, Maxtor, Micropolis and Seagate SCSI hard drives. Call for details.

## Input Devices

ScanJet IICX	938.76
--------------	--------

### Logitech

Logitech MouseMan	59.95
Logitech Trackman II	69.91

### Microtek

35T Slide Scanner	936.25
ScanMaker II	504.99
ScanMaker IIS	749.94
ScanMaker IIS Trans Media	487.15
ScanMaker IISR	1039.39
ScanMaker IIXE	876.11
ScanMaker Auto Doc Feeder	363.77

### Wacom

4x5 ArtPad ADB, with stylus	134.85
6x8 Artz ADB, cordless pres stylus	282.32
12x12 UD-series, cordless pres stylus	483.65

## Printers

### EPSON

Stylus Color 720 dpi Color Ink Jet	509.53
------------------------------------	--------

### HEWLETT PACKARD

DeskWriter 540	269.32
DeskWriter 560C	478.66
LaserJet 4M	1016.51
LaserJet 4MP	1387.21
LaserJet 4M Plus	1957.13
LaserJet 4SI MX	4234.22
LaserJet 4MV	2936.09
DeskJet 1200C	1599.49

### TEXAS INSTRUMENTS

microlaser 600	855.71
microlaser Pro 600 PS2	1197.02
microlaser PowerPro 120pm	1593.91

## Power Backup

BC250	94.87
BC400	138.91
BC500	173.09
BC500 LAN	177.51
BC600 LAN	234.24

### Smart Series-CALLI

## Memory

Simple Technology memory upgrades	
PowerBook 180 4MB	CALLI
PowerBook 180 8MB	CALLI
PowerBook 180 10MB	CALLI
PowerBook 230 4MB	CALLI
PowerBook 230 8MB	CALLI
PowerBook Duo 14MB	CALLI
PowerBook Duo 20MB	CALLI
PowerBook Duo 28MB	CALLI

CDW carries the complete Simple line-up. Call for configurations not listed here.

## EPSON®

## TOP SELLER

### Stylus Color 720 dpi color ink jet printer

Epson sets a new standard for ink jet printing. Laser-quality color ink jet printing is now a reality with the stunning 720 dpi/48 nozzle output of the Stylus Color.

- ✓ Selectable print resolutions: 720 x 720 dpi, 360 dpi, or 180 dpi
- ✓ Color print speed, highest quality mode: 5.5 min/page
- ✓ Nozzles: 64 black, 48 color
- ✓ Emulation: EBC/P2 Color ✓ 5 bitmaps fonts, 4 scalable fonts
- ✓ 64KB input buffer ✓ Automatic sheet feeder: 100 sheets letter or legal
- ✓ Cartridge life (characters): black-1.5 million/color-1.2 million



ONLY

\$509.53 CDW 40804

## TOP SELLER



## Robotics

### Sportster V.34 Mac & Fax

- ✓ True V.34 (28.8K bps): transmit data twice as fast as 14.4K modems
- ✓ High-speed protocols: V.34 (28.8K bps), V.FC (28.8K bps), V.32bis (14.4K bps) ✓ 14.4K bps send/receive fax ✓ V.42/MNP 2-4 error correction ✓ V.42bis/MNP 5

data compression ✓ Up to 115K bps data throughput ✓ 7 LED status lights, external volume control ✓ Includes data and fax software for Macintosh®

ONLY

\$248.33 CDW 45116

## REBATE

## Microsoft

### Microsoft Office V4.2

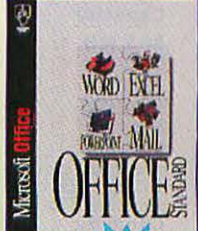
Experience the power of Microsoft's best-selling applications and the seamless integration made possible by Microsoft Office. Plus, Microsoft Office V4.2 is now fully accelerated for the Power Macintosh®!

Word V6.0 • Excel V5.0  
PowerPoint V4.0 • Mail license

Version upgrade.....\$214.79\* CDW 45219

3.5".....\$429.89 CDW 45289

\* After \$40 mail-in manufacturer rebate (ends 8/31/95)



### QuarkXPress V3.3

#### For Power Macintosh

The ultimate publishing software for professionals.



CD.....\$659.06 CDW 45317

Macintosh (68K CPU).....\$569.50 CDW 40554

### Adobe Illustrator V5.5

The best-selling Macintosh drawing package.



ONLY! \$375.12 CDW 42167

### Claris® FileMaker Pro V2.1

The #1 selling Macintosh database.



ONLY! \$89.99 CDW 36048

### Symantec SAM V3.5

Symantec AntiVirus for Macintosh® (SAM) is the highest-rated, best-selling Macintosh virus protection program in the world.



ONLY! \$64.36 CDW 44434

CDW Computer Centers, Inc.  
1020 E. Lake Cook Rd.  
Buffalo Grove, IL 60089-1900  
INTERNET: info@cdw.com

Hardware, Peripherals and Software at Discount Prices  
**800-509-4CDW**  
FAX (708) 465-6800

FREE TECHNICAL  
SUPPORT IS AVAILABLE  
TO CDW® CUSTOMERS!

WHY PAY RETAIL? CDW® SELLS FOR LESS AND SERVICES YOU BETTER!



# DIRECTTech Drives...

## To Meet Your Storage Needs

### HARD DRIVES

#### MICROPOLIS

5 YEAR WARRANTY

Capacity	Model #	Seek	RPM	Internal	External
2.4 GB (3.5")	DT-4221	LOW PROFILE 8 MS	7200	\$1069	\$1139
3.6 GB (5.25")	DT-1936	11 MS	5400	\$1299	\$1399
4.0 GB (3.5")	DT-3241	8.5 MS	7200	\$1675	\$1750
9.0 GB (5.25")	DT-1991	11 MS	5400	\$2899	\$2999

#### MICROPOLIS AUDIO/VIDEO SERIES

Capacity	Model #	Seek	RPM	Internal	External
2.4 GB (3.5")	DT-4221AV	LOW PROFILE 8 MS	7200	\$1119	\$1190
3.6 GB (5.25")	DT-1936AV	11 MS	5400	\$1399	\$1499
4.0 GB (3.5")	DT-3243AV	8.5 MS	7200	\$1769	\$1845
9.0 GB (5.25")	DT-1991AV	11 MS	5400	\$3019	\$3119

#### Seagate

NEW LOW PRICING!!!

5 YEAR WARRANTY

Capacity	Model #	Seek	RPM	Internal	External
1.2 GB (3.5")	DT-31200	10 MS	5400	\$575	\$635
2.4 GB (3.5")	DT-12400	9 MS	5400	\$1050	\$1125
2.4 GB (3.5")	BARRACUDA 2 LP	8 MS	7200	\$1099	\$1165
2.4 GB (3.5")	BARRACUDA 2 WIDE	8 MS	7200	\$1199	\$1299
4.2 GB (3.5")	BARRACUDA 4	8 MS	7200	\$1915	\$1999
4.2 GB (3.5")	BARRACUDA 4 WIDE	8 MS	7200	\$2015	\$2115
3.5 GB (5.25")	ELITE 3	10 MS	5400	\$1979	\$2079
9.0 GB (5.25")	ELITE 9	11 MS	5400	\$3095	\$3195

#### HEWLETT® PACKARD

5 YEAR WARRANTY

Capacity	Model #	Seek	RPM	Internal	External
1.2 GB (3.5")	DT-C3323	10 MS	5400	\$750	\$810
2.4 GB (3.5")	DT-C2490	8.5 MS	6400	\$1199	\$1299

#### Quantum™

2 YEAR WARRANTY

Capacity	Model #	Seek	RPM	Internal	External
365 MB (3.5")	LITG365	10 MS	4500	\$195	\$265
540 MB (3.5")	LPS540	10 MS	4500	\$240	\$299
730 MB (3.5")	LPS730	11 MS	4500	\$289	\$350
1.0 GB (3.5")	EM1080	9.5 MS	5400	\$605	\$665
1.4 GB (3.5")	EM1400	9.5 MS	5400	\$775	\$835
2.1 GB (3.5")	EM2100	9.5 MS	5400	\$1045	\$1105

#### IBM®

IBM QUALITY!

5 YEAR WARRANTY

Capacity	Model #	Seek	RPM	Internal	External
1.2 GB (3.5")	IBM0662	8 MS	5400	\$620	\$680
2.35GB (3.5")	IBM0664	9 MS	5400	\$1075	\$1175
4.0 GB (3.5")	IBM34320	8 MS	7200	\$2200	\$2300

All Drives are preformatted, tested and packaged with SCSI Manager 4.3 compatible drivers.  
External configuration includes choice of 25-50 or 50-50 pin double shielded, twisted pair cable.  
Ask your Sales representative about ACTIVE TERMINATION.



SyQuest REMOVABLE

Capacity	Model #	Internal	External
44/88MB	SO5110C	\$305	\$365
105 MB	SO3105	\$245	\$305
200 MB	SO5200	\$425	\$485
270 MB	SO3270	\$425	\$485

SYQUEST Drives include ANUBIS formatting software and 1 free cartridge

#### SYQUEST MEDIA NEW LOW PRICING!

44 MB	\$42	105 MB	\$54
88 MB	\$48	200 MB	\$76
		270 MB	\$64

#### CD ROM DRIVES

Make	Model #	Seek	External
Toshiba CD ROM	DT-4101	320MS	\$275
Toshiba CD ROM	DT-3401E	200MS	\$395
Toshiba CD ROM	DT-3501E 4x	120MS	\$430

#### MAKE YOUR OWN CD!!!

JVC Personal Archiver \$1999

#### TAPE BACKUP

Capacity	Model #	Format	External
4.0GB	SONY 5200	DDS-2	\$1080
4.8GB	SONY 5000	DDS-2	\$1199
4.8GB	HP 1533A	DDS-2	\$1375
2.5GB	EXABYTE 8205	8MM	\$1499
5.10GB	EXABYTE 8505	8MM	\$2275

#### OPTICAL

Capacity	Model #	Seek	External
230MB	FUJITSU 2300P	28MS	\$825
1.3GB	HP C1716	23MS	\$2299
1.3GB	MAXOPTIX TAHITI III	18MS	\$2399

#### MEDIA

1 GB	\$100	128 MB	\$30
1.3 GB	\$89	230 MB	\$39

#### DISK ARRAYS

Capacity	Model #	Seek Time	Trans. Rate	Price
2.0GB	DT-31200AR	5MS	7MB per sec.	\$CALL
4.0GB	DT-32550AR	4.5MS	8MB per sec.	\$CALL

Disk Arrays Include Inrium Research Software and APTO SCSI Accelerator Board. Great for Radius VIDEO VISION!!!

#### SOFTWARE

Connect your Mac to the Internet/Unix with Intercon Software. Call for lowest prices.

## DIRECTTech

### SYSTEMS INC.

7615 Golden Triangle Drive-Suite M

Eden Prairie, MN 55344

Int'l Orders (612) 941-2616 • Fax: (612) 942-0430



#### INTRODUCING...

MICRODISK® AV

LT &amp; LS from

MICROPOLIS

CALL NOW!!!

# 1-800-279-5520

## \$1099

SEAGATE BARRACUDA 2 LP  
• 8 MS SEEK • 7200 RPM • FAST-SCSI-2 •  
• 5 YEAR WARRANTY • INTERNAL CONFIGURATION

\*\*\*\*SPECIALS\*\*\*\*

## \$1675

MICROPOLIS 4.0 GB CAPACITY  
• 8.5 MS SEEK • 7200 RPM • FAST SCSI-2  
• 5 YEAR WARRANTY • INTERNAL CONFIGURATION



# LEASE FROM SUPERMICRO!

**8100/80 SUPER STATION**

8100/80 starting at \$2729!

- PowerPC 8100/80 w/ CD
- 40MB RAM, 1GB HD
- Extended keyboard
- Radius 17" Trinitron monitor
- SuperMac Thunder 24 video card
- Internal SyQuest 88c w/ 2 carts
- Microtek ScanMaker III
- DECaser 3500, 600 dpi, 12 ppm printer
- w/ 2 AppleTalk connectors
- Wacom 12x12 Graphics Tablet
- SuperMicro Extended Services

**ZERO DOWN!**  
**\$365 PER MONTH**  
**\$11 A DAY!!**

**FREE!**

**7100/66 VALUE STATION**

7100/66 starting at \$1719!

- PowerPC 7100/66 w/ CD
- 40MB RAM, 540MB HD
- Extended keyboard
- External SyQuest 88c w/ 1 cart
- Sony 175F Trinitron monitor
- AVision AV660 scanner w/ PS LE
- SuperMac Thunder 24 video card
- TI Pro 600, 600 dpi, 8 ppm printer
- w/ 2 AppleTalk connectors
- Wacom 6x8 Artz Graphics Tablet
- SuperMicro Extended Services

**ZERO DOWN!**  
**\$232 PER MONTH**  
**\$7 A DAY!!**

**FREE: SyQuest 88MB cartridge!**

**6100/60 DTP SOLUTION**

6100/60 starting at \$999!

- PowerPC 6100/60 w/ CD
- 24MB RAM, 540MB HD
- Extended keyboard
- External SyQuest 88c w/ 1 cart
- Sony 175F Trinitron monitor
- Radius 24xk video card
- AVision AV660 scanner w/ PS LE
- TI Pro 600, 600 dpi, 8 ppm printer
- w/ 2 AppleTalk connectors
- Wacom 6x8 Artz Graphics Tablet
- SuperMicro Extended Services

**ZERO DOWN!**  
**\$205 PER MONTH**  
**\$6 A DAY!!**

**FREE: SyQuest 88MB cartridge!**

**VIDEO PRODUCTION WORKSTATION**

8100/100 starting at \$2925!

- PowerPC 8100/100MHZ
- 72MB RAM, 2.1GB HD
- Extended keyboard
- Radius 20e Trinitron monitor
- SuperMac Thunder 24 video card
- Radius Video Vision Studio Pro Pak including 4.0GB Fast&Wide disk array w/ Fast&Wide SCSI controller
- Internal Sony SDT-5000 DAT drive
- SuperMicro Extended Services

**ZERO DOWN!**  
**\$599 PER MONTH**  
**\$19 A DAY!!**

**FREE: 10 tapes for SDT-5000**

**MICROTEK SCANNERS**

**MICROTEK SCANMAKER IIHR \$1029!**

The ScanMaker IIHR offers vivid, 24-bit color scans at 600 x 1200 dpi. It comes with a professional quality color calibration system for images with vivid, accurate colors.

SCANNER	DESCRIPTION	PRICE
Agfa StudioScan II	400 dpi flatbed	\$829
Agfa Arcus II w/trans	1200 dpi flatbed	\$2999
Avision AV660	600 dpi flatbed	\$569
ScanMaker III	1200 dpi flatbed	\$2499
ScanMaker IIHR	1200 dpi flatbed	\$1029
Tamarack 12000C w/trans	1200 dpi flatbed	\$999
Limax PowerLook	1200 dpi flatbed	\$2599
Nikon CoolScan	2700 dpi slide	\$1449
Polaroid SprintScan	2700 dpi slide	\$1859
StudioScan II adapter	transparency upgrade	\$379
Microtek adapter	transparency upgrade	\$519

**SONY TAPE DRIVES**

**SONY SDT-5000 \$1025!**

Sony DAT drives provide low cost data backup. With built-in data compression, the Sony SDT-5000 holds up to 16GB on a 120 meter cartridge!

**FREE! 72 hour Replacement Guarantee with any tape drive purchase!**

MODEL	CAPACITY	SIZE	MACKIT	PRICE
Sony SDT-2000	2GB	3.5"HH	\$725	\$775
Sony SDT-4000	8GB	3.5"HH	\$935	\$985
Sony SDT-5000	5-16GB	3.5"HH	\$1025	\$1075
Exabyte 8200	2GB	5.25"FH	\$1275	\$1350
Exabyte 8500	5GB	5.25"FH	\$2175	\$2250
Exabyte 8205	2-5GB	5.25"HH	\$1585	\$1660
Exabyte 8505	5-10GB	5.25"HH	\$2255	\$2330

Includes external drive, 25/50 SCSI cable, MAC SW II and terminator. Turbo version includes Retrospect.

**MULTIFUNCTIONAL DRIVES**

A multifunctional drive combines hard drive, optical drive, CD-ROM, tape and Syquest drive all together in the same enclosure! They cost less and eliminate compatibility problems.

MULTIFUNCTIONAL	PRICE
Sony SDT-5000/2.0GB Quantum	\$2199
Sony 650MB Optical/SyQuest 200	\$1399
Sony 3.5" optical/Nikon CoolScan	\$2399
SyQuest 200/540MB hard drive	\$689
SyQuest 88c/650MB optical drive	\$1299
SyQuest 88c/NEC 3X CD ROM/540MB HD	\$999
128MB optical drive/540MB hard	\$1059
NEC 3X CD-ROM/1.3GB optical drive	\$2399
2.1GB Quantum HD/8.0GB Sony DAT drive	\$1969
4.0GB Seagate HD/Nikon CoolScan	\$3699

Includes drive, 25/50 SCSI cable, terminator and Mac software.

**SYSTEMS**

SuperMicro has a complete line of Macintosh Quadra and PowerPC computers in stock. All system bundles are assembled and tested before shipping. Custom configurations are our specialty.

**8100/80 starting at \$2799!**

CPU/KEY/MOUSE	MONITOR/CARD	CASH	MONTHLY
8100/80AV/72/540/CD	Sony 17" Thunder 24	\$7399	\$171.65
8100/100/242.1/CD	Sony 20" Thunder 24	\$8059	\$186.96
8100/110/402.1/CD	Sony 20" Thunder 24	\$8239	\$191.14
7100/66/24/1GB	Sony 17" Thunder 24	\$5059	\$117.36
7100/80/40/200/CD	Sony 20" Thunder 24	\$7495	\$173.88
6100/66/24/540	14" hi-res color monitor	\$2146	\$49.78
Q800/32/1.0GB/CD	Sony 20" Thunder 24	\$7999	\$185.57
Q605/4/160	14" hi-res color monitor	\$1149	\$26.65

**SYQUEST DRIVES**

**NEW! dsc Turbo Drives**

Now even faster! Turbo models have guaranteed 72-hour replacement plus FWB Toolkit—FREE!

MODEL	INTERNAL	EXTERNAL	PRICE
SyQuest 270	\$370	\$410	\$435
SyQuest 200	\$355	\$395	\$420
SyQuest 105	\$190	\$230	\$255
SyQuest 88C	\$260	\$300	\$325
SyQuest 44	\$130	\$160	\$185

Includes external drive, 25/50 SCSI cable, Mac SW, terminator.

**CARTRIDGES 44MB CARTRIDGES ONLY \$44**

270MB Cartridges (20+ or with drive purchase) \$60  
200MB Cartridges (20+ or with drive purchase) \$70  
105MB Cartridges (20+ or with drive purchase) \$50  
88MB Cartridges (20+ or with drive purchase) \$39/45  
44MB Cartridges (20+ or with drive purchase) \$34/40

**HARD DRIVES**

**dsc 2.0GB ONLY \$799**

CAPACITY	SPEED	INTERNAL	EXTERNAL	PRICE
2.0GB	9ms	\$799	\$899	\$924

**Quantum 4.2GB ONLY \$1775**

CAPACITY	SPEED	INTERNAL	EXTERNAL	PRICE
GO256MB	NB 17ms	\$250	\$370	\$395
GO514MB	NB 17ms	\$395	\$515	\$540
42MB	17ms	\$79	\$139	\$164
85MB	17ms	\$110	\$170	\$195
270MB	10ms	\$164	\$224	\$249
365MB	10ms	\$190	\$250	\$275
540MB	10ms	\$235	\$295	\$320
730MB	10ms	\$280	\$340	\$365
1.0GB	10ms	\$575	\$635	\$660
1.4GB	9.5ms	\$750	\$810	\$835
2.1GB	9.5ms	\$969	\$1029	\$1054
4.2GB	8ms	\$1775	\$1835	\$1860

**Seagate BARRACUDA 4 ONLY \$1829**

CAPACITY	SPEED	INTERNAL	EXTERNAL	PRICE
2.5GB	B'cud 2, 8ms	\$1089	\$1149	\$1199
4.3GB	B'cud 4, 8ms	\$1829	\$1889	\$1939
1.0GB	Hawk 1, 9ms	\$565	\$625	\$675
2.4GB	Hawk 2, 9ms	\$989	\$1049	\$1099
4.3GB	Hawk 4, 9ms	\$1549	\$1609	\$1659
3.4GB	Elite 3, 11ms	\$1935	\$1995	\$2045
9.1GB	Elite 9, 11ms	\$3129	\$3189	\$3239

Includes external drive, 25/50 SCSI cable, Mac SW & terminator.

**OPTICAL DRIVES**

**5.25" OPTICAL DRIVES Sony 650 \$999**

MODEL	CAPACITY	SEEK	MACKIT	PRICE
Sony 650	650MB	19ms	\$999	\$1049
Sony 1.3GB	1.3GB	25ms	\$1999	\$2049
MaxOptix-Tahiti II	1.0GB	25ms	\$1899	\$1949
MaxOptix-Tahiti III	1.3GB	25ms	\$2195	\$2245
PMO-1.3GB	1.3GB	19ms	\$2379	\$2429

**3.5" OPTICAL DRIVES PANASONIC 128MB \$670**

MODEL	CAPACITY	SEEK	MACKIT	PRICE
Fujitsu-230	230MB	30ms	\$799	\$849
Sony P-301	128MB	35ms	\$779	\$829
Panasonic 128	128MB	35ms	\$679	\$729
Most-256	256mb	37ms	\$895	\$945

Includes external drive, 25/50 SCSI cable, Mac SW & terminator.

**5.25" CARTRIDGES**

MODEL	PRICE
dsc 3M 650MB	\$64/75
Sony 650/1.2/1.3GB	\$75/95/95
Komag 650/1.0/1.3GB	\$69/81/88

**3.5" CARTRIDGES**

MODEL	PRICE
dsc 128MB/Sony 128MB	\$22/29
Komag 128MB/230MB	\$24/34

**Purchase \$400 or more and get the full bundled version of Adobe Photoshop 3.0.1 for only \$299**



# THE MAC SOLUTIONS HOUSE

Configure Your Own  
System Package or  
Choose A Bundle Below

## DISCOUNT WAREHOUSE

0 DOWN  
Self Employed and New &  
Established Business Leasing



### NEW! Power Mac 8100/100 SuperSystem

- Power Macintosh 8100/100MHz w/ 40MB RAM, 1 GB Hard Drive, CD ROM Drive, 16-Bit Sound
- Sony 20" Multi-Res Trinitron Monitor
- Epson ES 1200C 30-Bit Color Scanner
- NEW! HP 4MV Laser Printer
- Adobe PhotoShop 3.0 • Keyboard • ABC Software Bundle & Cables

### NEW! Quadra 630 Home System \$1695

- Quadra 630 8MB RAM/250MB Hard Drive
- 14" Color Monitor
- Extended Keyboard & Mouse
- ABC Software Bundle

NEW! Power Mac 6100/66 8/350 HD/CD ROM w/14" Color Monitor, Extended Keyboard, Mouse ..... \$2195/\$57 p/m\*

NEW! Power Mac 7100/80 8/500 HD w/16" Color Trinitron Monitor, Ext. Kybd, Mouse ..... \$3490/\$89 p/m\*

NEW! Power Mac 8100/100 8/1000MB HD w/20" Color Trinitron Monitor, Ext. Kybd, Mouse ..... \$5190/\$133 p/m\*

NEW! Power Mac 7100/80 8/500 HD ..... \$2195

**1 (800) 723-8262**

(310) 325-1422 • International: (310) 325-2687

### COMPARE OUR DRIVE PRICES w/Our COMPETITORS!

QUANTUM 270MB Hard Drive...Int \$159/Ext \$229
QUANTUM 350MB Hard Drive...Int \$189/Ext \$265
200MB Syquest Drive w/Cartridge.....\$495
Quantum 730MB HD \$284 Seagate HAWK 1.0 GB HD...\$595

### SCANNERS, MONITORS & VIDEO

MICROTEK ScanMaker III 36-Bit Scanner w/Full PhotoShop	\$2299
UMAX Vista S6 High Speed, Single Pass Color Scanner	\$659
TRINITRON 17" Multi-Res Monitor.....\$895 20" .....\$1495	
RADIUS VideoVision Studio 2.0 (PowerMac/Mac)	\$3395

### PRINTERS & OTHER PERIPHERALS

TEXAS INSTRUMENTS MicroWriter 23 LASER PRINTER	\$649
HEWLETT PACKARD DeskWriter C	\$295
PORTABLE CD ROM BUNDLE: Double Speed MediaVision Port. CD ROM Drive (Batteries, AC Adapter & Headphones Included) w/Grolier's Encyclopedia, World & US Atlas	\$349

### MORE THAN 10 YEARS COMPUTER EXPERIENCE

ADVANCE  
BUSINESS  
CENTER

May 1995

### NEW! POWERBOOK 540c Power Package!

THE ULTIMATE, TOP OF THE LINE POWERBOOK POWERBUNDLE AT AN AMAZING PRICE!

- PowerBook 540c (33MHz 'LC040, 12MB RAM, 525MB Hard Drive, 640x480 Color Active Matrix Screen, Two Intelligent Batteries)
- FAXModem
- Tenba Deluxe Carrying Case
- HP DeskWriter 320 Port. B/W & Color Printer
- ABC DELUXE PowerBundle: Symantec GreatWorks, Connectix CPU, Norton Utilities, Hard Drive Utility Software, and a Surge Suppressor.



PowerBook 520 Power Package (same as above, but with PowerBook 520 8/240).....\$2550/\$66 p/m\*  
PowerBook 150 8/120HD System + FAXModem.....\$1729/\$45 p/m\*

### CUTTING EDGE MAC CLONE AUTHORIZED DEALER

### NEW! Quattro Mac Clone System \$1820

- Quattro 850 8/500MB HD w/CD ROM Drive (Quattro is a 68040 33MHz Authorized Mac Clone with 5 Drive Bays, 3 Full Size NuBus Slots, and 1MB VRAM. Full Mac Compatible + PowerPC Upgradeable!)
- 17" .28 dot pitch Color Monitor • Extended Keyboard and Mouse

Advance Business Center • 23510 Telo Avenue, Suite 5, Torrance, CA 90505

**1 (800) 723-8262**

fax: (310) 325-4073

Circle 225 on reader service card

DIGIAXIS@ONR.COM

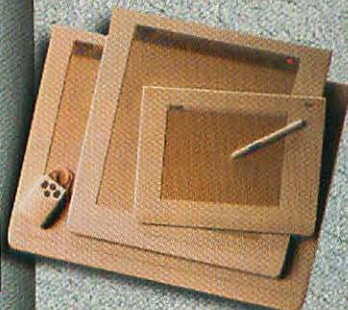
DIGITAL AXIS INTERNATIONAL

### Wacom

Pressure-sensitive Graphics Tablets  
12"x18" Standard/Electrostatic .....\$659/\$795  
4"x5" ARTPAD .....\$149  
6"x8" ARTZ .....\$299  
12"x12" .....\$499

### Painter 3.0 \$269

With purchase of Scanner or Wacom Tablet



### Photoshop 3.0.1

(full version) With purchase  
of Scanner or Wacom Tablet

**\$209**

### 20" Trinitron \$1249

PowerMac  
Compatible.  
2-year warranty.

Ikegami 21" Flat, Multi-Sync	\$2185
20" Trinitron, Multi-Sync	\$1389
17" Trinitron	\$699
With 24-bit Accelerator Card	\$999

EAsycolor 24 1152 .....\$1119

EAsycolor 24 1360 .....\$1449

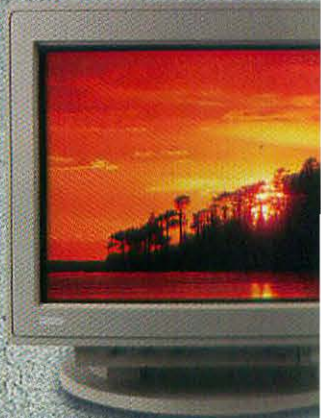
75hz! RISC-based Graphics Cards.  
Blazing SPEED! PhotoShop Acceleration!

Kodak CD-Writer .....\$ CALL

Microtek 45T Slide Scanner	\$5199
Microtek Scanmaker III	\$2549
Transparency Adapter	\$139
Microtek Scanmaker IIhr	\$829
Microtek Scanmaker IIsp	\$529

International Dealers Welcome

Wire transfer, C.O.D. accepted. Credit card fees may be assessed. Prices subject to change without notice. UPS, FedEx, DHL 2-day to Europe.



AXIS  
INTERNATIONAL

**512-329-7001**

**800-247-4678**

**Fax 512-327-0921**

5000 Plaza on the Lake, Ste 250, Austin, TX, USA 78746

**UMAX**  
Scanners

NEW

Gemini - Dual Lens, One pass Scanner	\$1489
UC 840 BLOWOUT!	\$539
Vista S6 - 600dpi One-Pass Scanner	\$649
Vista S8 - 800dpi One-Pass Scanner	\$729
UMAX 1260 - 1200dpi	\$829
Powerlook - 1200dpi One-Pass Scanner	\$2199
UMAX Transparency Adapter	\$409

Circle 83 on reader service card

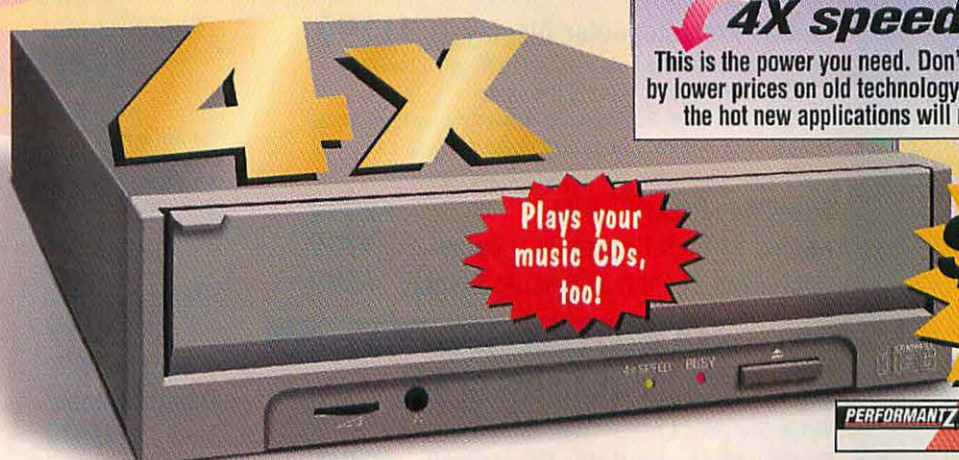


Now available exclusively from The Mac Zone!

# Performantz Quad Speed CD-ROM Drive



ORDER ANYTIME  
24 HOURS A DAY  
7 DAYS A WEEK



Not 2X. Not 3X...but  
state-of-the-art  
4X speed!

This is the power you need. Don't be fooled by lower prices on old technology. 4X is what the hot new applications will require.

Lowest Price Ever!

**\$299**

Order item #01124  
Was \$489.98

- The fastest rotational speed available!
- 600K per second data transfer rate
- 150ms average access time; 256K cache
- Multisession PhotoCD & MPC 2 compliant

The Performantz Quad Speed CD-ROM Drive leaps past double and triple speed drives to offer you unprecedented performance and dependability. Plus, software developers are now hard at work optimizing their CD-ROM titles to take full advantage of quad speed technology. So don't get left behind with outdated 2X and 3X technology! Run the best of today's multimedia and photo CD-ROMs AND be ready to enjoy the latest, quad speed CD software!

Buy the Performantz Quad Speed CD-ROM Drive and  
Choose from 2 Hot Bundles – or buy them both!

## CD-ROM Kit #1

Order #91921  
**Action Bundle**

- Flying Nightmares
- Rebel Assault LE
- ChessMaster 3000
- The Groove Thing

**\$44<sup>44</sup>\***  
\$94 Value!

\* With purchase of Performantz Quad Speed CD-ROM Drive

## CD-ROM Kit #2

Order #91923  
**Home Bundle**

- American Heritage Talking Dictionary
- Home Phone 3.0
- CardShop Plus Deluxe
- Groliers Encyclopedia 7.0

**\$44<sup>44</sup>\***  
\$193 Value!

\* With purchase of Performantz Quad Speed CD-ROM Drive

### Over 2,500 products in stock

Including new versions and all the latest releases for your Mac. New products every month! Software, hardware, peripherals, accessories... everything you need to be more productive at work and enjoy your play more.

### Shop 7 Days a Week, 24 Hours a Day

in the comfort of your own office or home.

### 30-Day Money-Back Guarantee

on many of our products. If you're not completely satisfied, please contact us.

### Lowest Catalog Prices or we give you FREE SHIPPING!

Any competitive catalog price comparison must include shipping charges.

### Next Day Delivery only \$3

no matter how much you order!



### FREE Catalog Subscription

Get a FREE One-Year Catalog Subscription. Stay up-to-date on the latest innovations and all the best buys in the industry. To get your FREE subscription, just fill out and mail in the coupon below.



Before you buy, call The Mac Zone

**1-800-436-0606**

For the best Macintosh products at better than Warehouse and Superstore prices.

Fax (206) 603-2500 • International (206) 603-2550 • CompuServe code: GO MZ

CORPORATE SALES  
1-800-405-9663

GOVERNMENT SALES  
1-800-371-9663

EDUCATION SALES  
1-800-381-9663

INTERNATIONAL SALES  
1-800-603-2570

e-World  
Online

### Trusted Name Internationally

Middle East - 971 4 359 800	Fax: 971 4 359 977	Mexico - 505 611 4646	Fax: 505 563 5025
Indonesia - 62 81 530 4567	Fax: 62 81 530 4715	Hong Kong - 852 2851 1750	Fax: 852 2581 0359
France - 33 1 4688 4040	Fax: 33 1 4790 6903	Japan - 81 3 5454 7206	Fax: 81 3 5454 7212
Germany - 49 40 551 6066	Fax: 49 40 551 9151	Belarus - 31 30 606 2599	Fax: 31 30 606 5088
United Kingdom - 44 483 911 456	Fax: 44 483 911 567	Spain - 34 (91) 532 9048	Fax: 34 (91) 532 9036
Scandinavia - 45 86 11 81 63	Fax: 45 86 11 81 33	Brazil - 55 195 3459 06	Fax: 55 192 32 0765
Switzerland - 411 401 4070(71,72)	Fax: 411 401 4073	Columbia - 571 690 3508	Fax: 571 214 6492
Portugal - 351 1 387 4558	Fax: 351 1 386 3801	Venezuela - 58 2 713197	Fax: 58 2 7604970

**MW505** PLEASE USE THIS CODE TO RECEIVE THESE SPECIAL PRICES  
Circle 71 on the reader service card

YES! START MY FREE ☐ MAC ZONE ☐ PC ZONE CATALOG SUBSCRIPTION

I buy for my BUSINESS: Corp ☐ Edu ☐ Work-at-home ☐ for my HOME ☐

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

Zip \_\_\_\_\_

Apt \_\_\_\_\_

State \_\_\_\_\_

Mail to: The Mac Zone, 15815 SE 37th St., Bellevue, WA 98006-1800

**MW505**



# CRA Systems, Inc. 800/375-9000

## TWO PAGES FOR THE COST OF ONE!

### LOWEST PRICES ON NEW AND FACTORY CLEARANCE ITEMS

#### TWENTY ONE INCH DISPLAYS

##### Radius PrecisionColor Display 21 **\$1499\***

- Microprocessor controls • 1600x1200 to 1024x768
  - Flat screen • Razor sharp .28 dot pitch
- Ideal solution for professionals requiring maximum screen area, color accuracy, and razor sharp images.

\*With qualifying videocard, accelerator, or computer purchase

##### SuperMac PressView 21 **\$2899**

##### Radius 21 inch Grayscale Display **\$799**

##### RasterOps 21 inch Grayscale Display **\$899**

#### TWENTY INCH DISPLAYS

##### 20 inches for the cost of 17!

While Supplies Last!—Your Choice of...

##### Radius PrecisionColor Display 20v **\$999\***

- Multiple resolutions 1280x1024 to 640x480
- Mac/PC compatible
- Works with most any Macintosh built-in video
- "Best Overall Screen Uniformity" — MacUser

##### SuperMac or E-Machines 20 **\$999\***

- 1152x870 to 1024x768 • Flat screen
- Shadow Mask Tube • Built in video support

\*With qualifying videocard, accelerator, or computer purchase

##### Radius 20 inch Grayscale Display **\$699**

##### Radius IntelliColor Display 20e **\$1699\***

**Limited Quantities!**

- Top rated 20" Trinitron, Best Money Can Buy
- MacUser, MacWorld, and MacWeek Editor's Choice
- 1600x1200 to 640x400 • Microprocessor Controls

\*With qualifying videocard, accelerator, or computer purchase

#### SEVENTEEN INCH DISPLAYS

##### SuperMac/E-Machines T16HMR **\$699\***

**Limited Quantities!**

- High Grade Studio Trinitron Series
- .25mm multi-resolution • Editors Choice
- Microprocessor Controls • 1024x768 to 640x480

##### SuperMatch 17T **\$799\***

##### Radius PrecisionColor Display 17 **\$CALL**

\*With qualifying videocard, accelerator, or computer purchase

#### PIVOT DISPLAYS

##### Radius Color Pivot LE **\$399**

With purchase of video card.

We have cards for SE/30, LC, IIsi, Nubus, and Quadras

##### Precision Color Pivot **\$599\***

##### Grayscale Pivot **\$399\***

##### Radius Full Page Display **\$299\***

\*With qualifying videocard, accelerator, or computer purchase

##### Radius PhotoBooster

**\$199\***

Retail \$999

- Features twin AT&T 3210 66MHz DSPs • Accelerates Photoshop Filters • Up to 10x faster than a Quadra 950
- MacUser Editor's Choice

##### PhotoShop Deluxe Edition **\$299**

##### Thunder DSP Daughterboard **\$299**

##### PhotoEngine **\$CALL**

##### Radius PowerView

**\$199**

Allows most PowerBooks and the Classic II to support displays and projectors.

##### SuperMac SuperView

**\$299**

Similar to Radius PowerView but also supports TV!

CRA Systems, Inc. full one year warranty. All quantities limited and sold on a first come first serve basis.

**radius**

Apple Catalog Reseller  
Authorized Service Provider

**SUPERMAC**







Radius 24XP

**\$199**

## 24 BIT VIDEO MILLIONS OF COLORS!

**Buy 256 colors for \$199 and get 16 million free!**

Finally a 24 bit video solution for the price of 8 bit. Upgrade to the industry standard with photorealistic color in applications such as Adobe Photoshop, Illustrator, PageMaker, and others. Even games, CDs, and most business applications such as Microsoft Word and Excel currently support millions of colors (24 bit). All cards available in limited quantities only. First come first serve.

### 21" RESOLUTIONS 24 BIT

SuperMac Spectrum 24 Series V	\$599
Radius PrecisionColor 24X	\$599
Radius PrecisionColor Pro 24X	\$699
All Thunder IV's	\$CALL
All Thunder II's	\$CALL
SuperMac Ultima LX with DSP Photoshop acceleration	\$1299
RasterOps Horizon 24	\$1499
RasterOps 24XLTV	\$1499
RasterOps PaintBoard Pro	\$799
RasterOps PaintBoard Turbo XL	\$699
RasterOps Prism GT	\$CALL

### 21" RESOLUTIONS 8 BIT

Radius PrecisionColor 8XJ	\$399
SuperMac DoubleColor LX	\$399
SuperMac Spectrum 8/24 PDQ	\$399

### 20/19" RESOLUTIONS 24 BIT

Radius PrecisionColor 24XK	\$499
Radius PrecisionColor Pro 24XK	\$599
SuperMac Futura MX	\$499
RasterOps PaintBoard Lightning	\$499
RasterOps Prism 24	\$CALL

### 20/19" RESOLUTIONS 8 BIT

SuperMac Spectrum 8 Series III	\$199
--------------------------------	-------

### 17/16" RESOLUTIONS 24 BIT

Radius 24XP	\$199
-------------	-------

### APPLE VIDEO CARDS

Apple 8+24	\$399
Apple 8 Bit	\$99



Circle 20 on reader service card

## 68040 Accelerators Radius Rockets



**\$299\*\***  
from

Radius Rocket 33MHz w/FPD	\$399**
Radius Rocket 40MHz w/FPD	\$499**
Stage Two Rocket 40MHz w/FPD	\$899
-includes SCSI II Booster and RocketShare	
SCSI II Booster (up to 4x faster)	\$249
PhotoBooster for Rocket	\$299
RocketShare	\$299

\*\*With purchase of any Rocket peripheral

### MULTI MEDIA

## Video Spigot Card from \$99\*

retail price \$599

VideoVision Basic	\$CALL
VideoVision Studio Upgrade	\$CALL
VideoVision Studio	\$CALL
VideoVision Studio Array	\$CALL
VideoSpigot Nubus	\$99*
Spigot and Sound	\$299
VideoSpigot LC	\$99
VideoSpigot IIsi	\$99
VideoSpigot Pro	\$399
MacRecorder	\$149
Adobe Premiere	\$99**

\*With computer or video purchase

\*\*With purchase of Premiere



Apple Catalog Reseller  
Authorized Service Provider

Dealers and consultants call for  
quantity pricing. We ship anywhere.

Monday thru Friday 9AM to 8PM CST

Saturday 10AM to 4PM CST Sales Department Only

Domestic Sales 800.375.9000

Fax 817.754.2345

Consultants/Dealers 817.754.2131

International Sales 817.754.2120

Se hace pedidos internacional. Nous acceptons des  
commandes internationales. Internationale Handlerkonditionen.

Prices reflect cash discount. Not liable for typographical errors.  
All shipping charges for COD orders to be secured by credit card.

**800/375-9000**

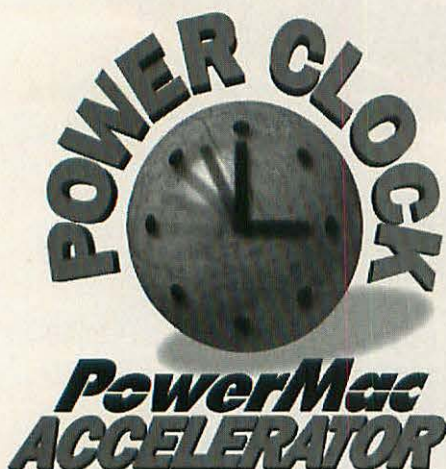
**CRA Systems, Inc.**

300 South 13th St., Waco, TX 76701

MACWORLD May 1995 203



# Magic PowerClock™ PowerMac Accelerator



PowerClock	Newer's PowerClip	PowerClock Benefits
<b>Tin Pins</b>	Brass Pins	No corrosion. Better electrical connection.
<b>Snap-on Installation within minutes</b>	Clip-on Installation takes up to 3 hours	Long term reliability. No visual alignment necessary to make proper contact. Won't come loose if jarred or dropped.
<b>Fail-safe Indicator light</b>	No indicator	Fail-safe indicator provides an LED signal when installation is complete.
<b>\$119</b>	\$195	Includes Software FPU™

Take your Power Mac to the limit. PowerClock accelerates your Power Mac by up to 40%. Total compatibility. User-installable in seconds with fail-safe instructions. Clips in place. 30 Day MBG. 3 Year Warranty



PowerMac 6100, 7100 (to 84 Mhz).....	\$99*
Performa 61xx (to 84 Mhz).....	\$99*
Level II Cache 256K/512K .....	\$185/\$369
PowerClock & PowerCache.....	\$249/\$399
Software FPU (PowerPC Version) .....	\$20

\*With purchase of Software FPU

## Magic SyQuest



### Magic SyQuest 270 \$399

3.5 inch storage solution.  
12 ms access time.

SQ270 Cartridges 10 Pack \$62



### Magic SyQuest 200 \$419

5.25 inch storage solution.  
Backwards compatible with  
88MB and 44MB cartridges.

SQ200 Cartridges 10 Pack \$77

## MacProducts USA

# 1-800-347-8755

512-892-4070 Fax: 512-892-4455

sales@dgr.com

http://www.dgr.com/

4544 S. Lamar Blvd., Suite 100, Austin, Texas 78745





# Only one company could take all there is to know about global technology markets and put it in this convenient kit.

The IDG Global Marketing Kit provides technology market profiles of countries in four regions (North America, Europe, Asia/Pacific, and Latin America). This detailed information is available both in bound collections and on a searchable



CD-ROM (which also contains abstracts of IDC worldwide research, as well as in-depth profiles of IDG publications read all over the world). Also included is an informational video featuring interviews with key industry leaders.

Historically, targeting the right customers throughout the world has required an uncanny combination of experience, timing, money, and luck.

We at IDG, however, believe there is a better way.

One you can use to your advantage right now.

You see, when it comes to experience in the global technology market, no other company compares with IDG. Today, we have more than 200 publications in more than 60 countries—plus research facilities

and capabilities that are the envy of the industry.

And now, we've taken that breadth of experience and knowledge and packaged it into a comprehensive global technology marketing kit designed to do one thing: make your global marketing efforts easier and more effective.

The kit is only \$495 and is available for immediate delivery.

Call 1-800-IDG-IS IT and order yours today. IDG. It's in a world of its own.

 **IDG**  
INTERNATIONAL DATA GROUP



# PRODUCT INDEX BUSINESS TOOLS



## PRODUCT INDEX

Category	Page No.
<b>ACCESSORIES</b> .....	<b>225</b>
Covers	
<b>BUSINESS TOOLS</b> .....	<b>206-208</b>
Bar Code	
LCD Panels	
Manufacturing	
Medical	
Point of Sale	
Presentation	
Productivity	
Real Estate	
<b>EDUCATIONAL &amp; RECREATIONAL</b> .....	<b>225-227</b>
Discount Software	
Genealogy	
Grading	
Music	
Religion	
<b>GRAPHICS</b> .....	<b>227-229</b>
CD ROM Photos	
Clip Art	
Graphics Translators	
<b>MULTIMEDIA &amp; CD-ROM</b> .....	<b>227</b>
CD ROM	
<b>NETWORKING &amp; COMMUNICATIONS</b> .....	<b>224-225</b>
BBS	

Category	Page No.
<b>PROGRAMMING &amp; UTILITIES</b> .....	<b>229</b>
Data Compression	
Languages	
<b>SERVICES &amp; SUPPLIES</b> .....	<b>229-230</b>
Computer Insurance	
Computer Repair	
Data Recovery	
Slides	
<b>SPECIALIZED MARKETS</b> .....	<b>230</b>
Math	
<b>SYSTEMS &amp; PERIPHERALS</b> .....	<b>208-219</b>
Switch Box	
<b>UPGRADES &amp; MEMORY</b> .....	<b>219-224</b>
Memory Upgrades	
<b>ACCOUNT MANAGERS:</b> 800.888.8622	
Carol Johnstone .....	415.978.3152
Shannon Smith .....	415.974.7414
Niki Stranz .....	415.978.3105
<b>DTP COORDINATOR:</b>	
Clayton Haberman .....	415.978.3132

OVER  
**1/2 MILLION**  
ACTIVE BUYERS **FIND**  
**WHAT** THEY ARE  
**LOOKING FOR**  
IN THE  
**MACWORLD**  
**SHOPPER SECTION.**

## Thinking of Bar Codes ...



## Think Videx!!

If you need a quality bar code reader small enough to fit in the palm of your hand, Videx has a bar code reader for you.

The TimeWand I offers credit-card sized portability, ideal in time and document tracking applications. The rugged DuraWand can take the punishment typically found in

delivery and security applications. The TimeWand II offers the durability and computing power necessary in applications ranging from hospital patient care to warehouse inventory.

Call today to receive a free information kit on Videx portable bar code readers.

1105 N.E. Circle Blvd., Corvallis, OR 97330  
503-758-0521 • Fax 503-752-5285



Videx, TimeWand, and DuraWand are registered trademarks of Videx, Inc. GCO373

CIRCLE 545 ON READER SERVICE CARD

## TPS The Bar Code Innovators



### TPS Firsts

- '76 TPS Invents the Bar Code Keyboard Wedge
- '81 First PC Keyboard Wedge
- '84 First Keyboard Wedge for Mac
- '87 First Macintosh ADB Keyboard Wedge
- '92 First Integrated Laser for Macintosh
- '94 First Newton Bar Code Readers

Integrated Macintosh Keyboard Laser	\$795
Macintosh Laser and Wedge Combo	\$595
CCD Keyboard Wedge for Mac	\$295
MobileWand Newton Bar Code Reader	\$269

Bar Code Pro "All" Software	\$325
Bar Code Pro "UPC" Software	\$195
SuperDisk Bar Code Fonts	\$75
Postnet Fonts	\$49

**Integrated TPS Nomad Cordless RF Laser and Base**  
**\$1995**

**30-Day Money Back Guarantee - Industry Leading Warranties  
Toll Free Technical Support**

**Call Us Toll Free (800) 526-5920**



prices subject to change without prior notice  
International (415) 988-0141 Fax (415) 988-0289  
INTERNET: barcode@com.com

CIRCLE 441 ON READER SERVICE CARD



*Creating  
precision  
bar codes is  
as easy as  
using a font!*

**PRINTBAR™  
BAR CODE FONTS**

- Compatible with virtually any Macintosh application.
- Choose from: • UPC/EAN/ISBN • Code 39 • Interleaved 2 of 5 • POSTNET/FIM.
- 90-day money back guarantee.

*"This is the best product of its kind, and it's reasonably priced too!"*  
—MacUser review **★★★★½**

**Bear Rock  
TECHNOLOGIES**

Bundle discounts available.  
4140 Mother Lane Dr., Ste. 100, Shingle Springs, CA 95682  
916 672-0244 • Facsimile 916 672-1103

*Scanning bar codes  
is even easier!*



**CODESCAN 3000™  
BAR CODE READER**

- Comes complete with wand and 5 year warranty.
- Scans information directly into software application.
- Available with laser gun, CCD, badge slot, magstripe options.
- No software required. Ready to use in minutes!
- Money back guarantee.

Call the Bar Code Experts

**800 232-7625**

**Power Tools for the Power Presenter**

One stop  
shop for  
all major  
brands



**SALES • LEASES • RENTALS**

**COLOR  
from  
\$1,795**

For the latest in color projection panels and projectors call the experts in LCD technology. Your satisfaction guaranteed or your money back. Quick delivery via Fed-X or UPS.

**Call for CATALOG 1 800 726 3599**

**Panelight**  
DISPLAY SYSTEMS, INC.

101 The Embarcadero Ste. 100-A, San Francisco, CA 94105  
Hours: 6:30 to 5:30 PST, 9:30 to 8:30 EST  
VOICE: 415 772 5800 FAX: 415 986 3817

CIRCLE 578 ON READER SERVICE CARD

**The Experts Choice for Barcoding!**

**Bar Code Generation**

**MacBARCODE**

With a colour option that works.  
The highest precision barcoding package available for the Mac.

**For Sheet-fed Labels**

Easy to use, prints any label with barcodes, text, graphics, numbers and dates.

**Computalabel**

28 Green Street, Newbury MA 01951, Fax 508-462-9198

CIRCLE 544 ON READER SERVICE CARD

**For Reel-fed Labels**

Prints short-run labels on reels with barcodes, text, graphics, numbers and dates. Compatible with the full range of Zebra Printers.



**Bar Code Readers**

A complete line of bar code scanners starting at \$255

Call toll free **800 289 0993**

**Read Faster...**

...Much Faster! with *Advanced Reader*



**FAST**

Increase your reading speed up to **300 %** in three months using proven methods.

**CONVENIENT**

Just two 10 minute sessions a day at work, at home or wherever your Mac is.

**EASY**

Let the application guide you through interactive exercises tailored to your changing reading level.

**FsofT  
Technologies**

To order or for more information call:  
**1-800-239-7964**

Only \$ 149  
+S&H

Fax: (514) 487-6196

CIRCLE 475 ON READER SERVICE CARD

**Project Wall-Sized Multimedia**

**Only \$3,799.**

**SPECIAL  
OFFER!**

Introducing the **BOXLIGHT ProColor**  
1500 Multimedia Projection Panel. Full-



color, big-screen multimedia and video projection with built-in audio! Industry-leading performance at special introductory price of only \$3,799!

- ◆ Active-matrix color
- ◆ Built-in video & audio
- ◆ Rugged & portable
- ◆ PC & Mac Compatible
- ◆ Unbeatable price

Your direct source for all the bright answers.

- ◆ Widest selection
- ◆ Instant availability
- ◆ Overnight shipping
- ◆ 30-day guarantee

**BOXLIGHT™  
CORPORATION**

17771 Ford Dr. N.E., Poulsbo, WA 98270  
206/779-7901 • Payment: VISA, MasterCard,  
American Express, COD and Purchase Orders  
(some restrictions). Leasing and rental options  
available. 30-Day Money-Back Guarantee.

**Call Today 1-800-762-5757**

CIRCLE 423 ON READER SERVICE CARD



# BUSINESS TOOLS SYSTEMS & PERIPHERALS



**Fast Systems 800-508-4444**

**Mail Order** Tel. (508) 653-6911  
Fax (508) 650-1872

**Distribution**  
EES Companies, Inc.

**Point-of-Sale**

- ▶ Order Entry
- ▶ Invoicing
- ▶ Fast Cash Retail
- ▶ Purchase Order
- ▶ Credit Card Processing
- ▶ Inventory Control
- ▶ Barcoding
- ▶ Multi-User
- ▶ Complete Systems Available
- ▶ Demo Available

CIRCLE 600 ON READER SERVICE CARD

**MacLandlord \$399**

- Property management & bookkeeping program
  - Easiest-to-use
  - Tracks tenants, vacancies
  - Prints checks, receipts, notices
  - Income & expense statements
  - Handles multiple properties
  - Free telephone support
  - 30 Day money-back guarantee
  - \$199.0 for competitive upgrade
- Labana Management Company  
P.O. Box 2037  
Dearborn, MI 48123  
313/562-6247

**StickyBusiness® Plus**

**Bar coding and labeling at a price you can afford**

Quickly design professional quality labels, cards, tags and envelopes.

- Bar codes, text, graphics, serial numbers, postal formatting, rotation, and merge features.
- Includes 45 bar code fonts: Code 39, 128, ITF, UPC, EAN, ISBN, OCR-A, OCR-B, USPS Certified PostNet, and FIM.
- Knows over 700 paper product formats or add your own.

**Special Price! \$145.00**

**ORDER NOW! 800-752-4400**  
(509) 624-5170 • Fax (509) 624-0109  
Williams & Macias, Inc.

CIRCLE 408 ON READER SERVICE CARD

**Credit Card**

*Authorization & Electronic Deposit Software*

- Save hundreds, if not thousands of dollars.
- Automatically authorizes and deposits all credit card sales -- individually or in batches.
- Integrate with your sales system with AppleEvents, AppleScript & import/export.

**MacAuthorize®**

• Single and Multiple User Versions •  
POS Credit Developers since 1981

**800/483-5526 • 408/274-1110**  
Tellan Software, Inc.

CIRCLE 480 ON READER SERVICE CARD

## Take Control

Complete Systems Start at

# \$2,799

Taking control of your business is easy with a system that has been designed and proven by thousands of retailers just like you. POS-IM provides full POS and Inventory Management functionality with the features you need at an outstanding price.

## POS-IM

Point-of-Sale • Inventory Management

Ensign Systems, Inc.  
(801) 546-1616

The One That Apple® Uses

CIRCLE 417 ON READER SERVICE CARD

## BAR CODE PRO™

Create EPS graphics for your desktop publishing documents. Call for a free demo disk and get the information you need to make an intelligent purchasing decision for Mac or Windows.

800.619.0399  
718.499.6293  
or fax  
718.768.3997



SYNEX

CIRCLE 450 ON READER SERVICE CARD

## Bar Coding



- Portable & Non-Portable Readers
- Radio Frequency Readers
- PostScript Bar Code Fonts

**800-345-4220**

WORTHINGTON  
DATA SOLUTIONS

## 24-Bit Accelerated Graphics Card For Entry Level Mac's

Color Fusion™, from Xceed Technology, is a unique new graphics card that allows you to add a larger monitor, up to 21", with more colors or shades of gray, or add a second monitor to your Entry Level Mac. Color Fusion will enhance the video capabilities of any Macintosh using the LC style PDS slot, including Apple's new 630 family of low cost Multimedia workstations, as well as any LC series, Performa series, Color Classic or Quadra 605.

- Compatible with all current Apple displays and most any VGA, SVGA and Multi-Sync monitors.
- Maximum resolution of 1280 x 1024
- 30-day money back guaranty
- Easy installation
- 5-year registered warranty
- Estimated street price of \$499.00

Ask your local dealer or a favorite mail-order company about Color Fusion, or call us direct at 1-800-XCEED-IT (800-923-3348) and ask for Ext. 405.

Even Little Mac's Deserve Big Color



48700 Structural Drive, Chesterfield, MO 63051  
810 • 598 • 8030 Fax 810 • 598 • 8508

CIRCLE 473 ON READER SERVICE CARD

**POINT OF SALE  
INVENTORY CONTROL**

- Software & Hardware for
- Retail
  - Manufacturing
  - Service Industry
  - Kiosk Developers

New Bar Code Wand Only \$225  
Bar Code/Magnetic Stripe Readers  
Receipt Printers • Cash Drawers  
Credit Card Auth. & Deposit Software  
New Electronic Catalog & Fax on Demand  
call or fax for a **FREE CATALOG**  
**(800) 622-7670**

(618) 985-8237 TEL. • (618) 985-3014 FAX  
Dealer Inquiries Welcome  
30 day MBG

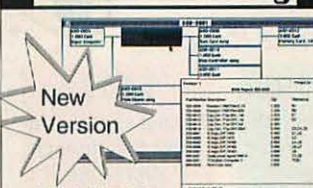
CIRCLE 466 ON READER SERVICE CARD

**ELECTRONIC MEDICAL RECORDS**

You ARE ready for a computerized medical chart. CARE4TH® PRO will revolutionize your practice. A mature, reliable, doctor-designed program, it feels like a chart, yet is astoundingly powerful. Hundreds of your colleagues in 43 states already know this. Single/network versions, Mac/Native PowerMac, starting under \$2800!

Med4th Systems, Ltd.  
1165 West Green Tree Road  
Milwaukee, WI 53217  
414/351-1988  
Fax: 414/351-1954

## Manufacturing



- New Version**
- Inquire/Mac 1.6
- Bill of Materials
  - Purchasing
  - Inventory Control
  - Custom AppleScript Links

**OnBase Technology, Inc.**  
CIRCLE 479 ON READER SERVICE CARD

## Buy & Sell

**New / Used Mac's**  
High End Custom setups  
**Get CASH for Your MAC**

Trade-in your old Mac for a PowerMac

**Infinity Micro Computer**  
Tel: (310) 289-8288 Fax: 289-0832  
CIRCLE 422 ON READER SERVICE CARD



LATEST

# Mac

## S.A.L.E

### INTERNATIONAL

SPECIALS

## USED SYSTEM SPECIALS



**Performa 550**  
5/160 W/CD  
68030 33MHz  
Factory Refurb

▶ **\$999.00** ◀

## Refurbished Printers

Stylewriter - \$149.00

Stylewriter II - \$189.00



**Mac LC II**  
4/120 W/Kbd & **New**  
Apple 12" Mono. Monitor

▶ **\$649.00** ◀

## Refurbished Printers

LaserSelect 300-\$349.00

LaserSelect 310-\$369.00



**COLOR CLASSIC 4/80**  
KEYBOARD & MOUSE

▶ **\$775.00** ◀

## SUPER DEALS ON USED

**\*\*Performa 466 4/160**

(68030 33MHz Factory Refurb. W/ClarWorks & Mouse Only)

**\*\*Mac LC II 4/80 w/kyb**

Mac Quadra 950 8/0

PB 145B 4/80

PB 180C 4/80

Duo 210 4/80

**\$599.00**

**\$479.00**

**\$2,175.00**

**\$849.00**

**\$1,999.00**

**\$599.00**

**\*\*Personal Laser LS**

ImageWriter II

Apple OneScanner

Apple Color OneScanner

PB Express Modems

Apple CD150/CD300 Ext.

**\$279.00**

**\$199.00**

**\$249.00**

**\$499.00**

**\$99.00**

**\$149/\$249.00**

\* NEW TRADE-IN PROGRAM \*

**Save \$200.00 (or more) on New Power Mac 7100 & 8100's**

With The Trade-In Of Any Mac CPU (working or not) Huge trade-in allowances for all Mac Equipment  
(Call for details, limited time promotion)

## New Apple

**8•24**  
Video Card  
**\$129.00**

**Toner for LW**  
**Select 300/310**  
**\$69.00**

**New MS Word/Excel Bundle - \$79.00**  
**ONLY \$49.00 With Any CPU**

**BOTH FOR ONLY - \$159.00**

**New NEC CD Drive - \$99.00**  
**Includes Over \$200 Software Free:**

T/Maker Clickart 2000 & DRIVE 7 CD & The Merchant

• **New Microsoft Works - \$19.00**



**\$129.00**  
**New Apple**  
**12" Mono Monitor**

## Hewlett-Packard DeskWriter550C

Color Ink-Jet Printer (Factory Refurb) ▶ **\$299.00**

## New Apple LaserWriters

**LW LS - \$399.00 / LW Select 310 - \$449.00**

USED

New Apple Color Plus Display	\$299.00
New ImageWriter II	\$325.00
New Apple HDI-20 Ext 1.4 Drive	\$149.00
New Laser IIf Logic Bd (Upgrade)	\$349.00
New Laser NTR Logic Bd (Upgrade)	\$299.00
Mac Plus No Kbd/Mouse	\$159.00
Mac SE (800K) 1/0	\$225.00
Mac SE (FDHD) 1/0	\$325.00
Mac Classic 2/40	\$429.00
Mac LC II 4/40	\$399.00

(Other Configurations Available)

New Apple One Scanner	\$399.00
New Ext. Hard Drive Enclosures	\$69.00
New Extended Keyboards	\$75.00
New Mac IIf Cache Cards	\$25.00
New Adobe PhotoShop V2.5LE	\$69.00

Mac II 1/0	\$199.00
Apple Hi-Res Mono Monitor	\$99.00
Apple 12" RGB Display	\$179.00
Apple 16" RGB Display	\$649.00
Apple 8 Bit Video Card	\$85.00

NEW USED

**We Now Feature A Huge Inventory Of Parts For All Apple Products**  
**And Also Offer Extended Warranties On All Apple Equipment**

Limited Quantities/Prices subject to change  
Prices represent a Discount - off Full Price  
Returns at discretion of Mgmt./15% Restocking fee

**1-800-729-7031**

1150 W. Alameda Dr., Ste. 1&2, Tempe, AZ 85282  
(602) 858-0900 / (602) 858-9537 (Parts)

**WE WANT TO BUY YOUR NEW/USED MAC EQUIPMENT**

CIRCLE 401 ON READER SERVICE CARD







# EVERYTHING UNDER THE SUN TO HEAT UP YOUR IMAGES...

**AT DOWN-TO-EARTH  
PRICES!!!**

**'Organizer' SPECIAL**  
In Control 3.0 plus  
Quicken 5 - get both  
for just \$49



**800-741-6227**



**W**hen you purchase products for digital design, prepress and video, why not talk to the experts?

With over 22,000 Mac and PC hardware and software items, and warehouses coast-to-coast to serve you, CDG Systems is your discount source for all your computer graphics needs.

Heat up your images. Call one of the friendly experts at CDG Systems today!



We feature a complete line of scanners, like the UMAX UC1260 - true 1200x600 dpi color w/full Photoshop - just \$1059

## Computer Design & Graphic Systems

6225 Presidential Court Suite F  
Ft. Myers, FL 33919  
Local: 813-489-4338 FAX: 813-489-4694

CIRCLE 416 ON READER SERVICE CARD

### PowerMAC

6100/60 8/250	\$1299
6100/60 8/250/CD	\$1499
6100/60 16/500/CD	\$1899
6100/60AV 8/250/CD	\$1899
6100/66 8/350/CD	\$1849
6100/66 16/500/CD	\$2099
6100/66 16/500/DOS	\$2599
7100/66 8/500/CD	\$2199
7100/66 16/500/CD	\$2499
7100/66 40/1GIG/CD	\$3449
7100/66AV 16/500/CD	\$2799
7100/80 8/500	\$2599
7100/80 8/700/CD	\$2899
7100/80AV 16/700/CD	\$3399
8100/80 8/0	\$2599
8100/80 8/600	\$2699
8100/80 16/500/CD	\$3099
8100/80 16/1GIG/CD	\$3399
8100/80 40/1GIG/CD	\$4299
8100/80 72/2GIG/CD	\$5499
8100/80 136/2GIG/CD	\$6999
8100/80AV 16/500/CD	\$3499
8100/80AV 72/2GIG/CD	\$5999
8100/80AV 136/2GIG/CD	\$7699
8100/100 8/0	\$3149
8100/100 8/700	\$3249
8100/100 16/1GIG/CD	\$4199
8100/100AV 16/1GIG/CD	\$4349
8100/100 40/1GIG/CD	\$5099
8100/100 72/2GIG/CD	\$6099
8100/100 136/2GIG/CD	\$7899
8100/100AV 136/2GIG/CD	\$8399
8100/110 16/2GIG/CD	\$5899

### QUADRA

605 4/160	\$849
610 8/230	\$1249
610 8/230/CD	\$1449
610 8/230/DOS	\$1499
630 4/240	\$1029
630 8/240/CD	\$1499
650 8/230	\$2599
800 8/230	\$2499
840AV 8/500	CALL
950 8/0	\$2899
950 8/500	\$3149
950 16/1GIG/CD	\$3999

### POWERBOOK

150 4/120	\$1299
165 S & 180 S	CALL
520 4/160	\$1799
520C 4/160	\$2249
520C 8/160	\$2499
520C 12/320/MOD	\$3099
540 4/240	CALL
540 12/240/EXP	\$3499
540 12/320/EXP	\$3799
540C 4/320	\$3299
540C 12/320/FAX	\$3999
540C 12/500/FAX	\$4399
540C 20/500/FAX	\$4699

### DUO

250 4/200	\$1299
250 12/200/EXPRESS	\$2249
270C 4/240	\$1999
270C 12/240/FAX	\$2599
280 4/240	\$2389
280C 4/320	\$2999
280C 12/320/Modem	\$3699
Mini Dock	\$299
Duo Dock 230HD	\$649
Duo Dock II	\$899
External 1.44 Floppy	\$149
210 & 230's	CALL

### WORKGROUP SERVERS SCALL

### SOFTWARE

Adobe Photoshop 3.0	\$839
Adebe Illustrator 5.5	\$369
Aldus Pagemaker	\$595
Quark Express PPC	\$649
Microsoft Office PPC	\$459

UNIVERSITY  
GOVERNMENT  
AND FORTUNE  
1000 P.O.'S  
Trained Staff,  
We ship out of U.S.I



**(800) 689-3933 ORDERS ONLY!**  
**(310) 473-2535 FAX (310) 312-9041**

**SAME PRICE FOR CASH OR CREDIT CARDS.**

**POWER BOOK 540C**  
**4/320HD \$3299**  
**ACTIVE MATRIX COLOR!**  
**12/320 Includes Bluetooth 1.4.4 FAX \$3999**

**POWER MAC**  
**7100/66**  
**3 NU BUS SLOTS 16 BIT SOUND QUALITY**  
**8/500/CD \$2199**

**Performa's Comes with \$750 of free software!**

**Performa 475**  
68040 25MHz, Keyboard and  
Monitor included. SMD FAX  
**4/250 \$799**

**Performa 550**  
68030 33MHz, Keyboard and  
Monitor included. SMD FAX  
**5/160/CD \$1199**

**Performa 575**  
68040 44/33MHz, Keyboard and  
Monitor included. SMD FAX  
**5/250/CD \$1599**

**Performa 630**  
68040 66/33MHz, Keyboard and  
Monitor included. SMD FAX  
**8/250/CD \$1749**

**Performa 6110**  
RISC 60MHz, Keyboard and  
15" Monitor included. 1.4.4 FAX  
**8/250/CD \$2399**

**Performa 6115**  
RISC 60MHz, Keyboard and  
15" Monitor included. 1.4.4 FAX  
**8/350/CD \$2499**

### SONY MONITORS

155F 15" Color	\$439
1604 17" Color Refurb.	\$599
1730 17" Color	\$799
175E 17" Color	\$949
175F 17" Color	\$869
205E 20" Color	\$1799
2036 20" Color Refurb	\$1399
2038 21" Color	\$1999

### PDI

200MB 5.25 EXTERNAL	\$579
88/44W 5.25 EXTERNAL	\$429
270MB 3.5 EXTERNAL	\$499
105MB 3.5 EXTERNAL	\$359
1 GIG Quick Array F-REM	\$1599
4 GIG Quick Array F-REM	\$4299
1.3 GIG Magneto Optical	\$2399

**GE 4 YEAR ON SITE WARRANTY!**

To find out how much, locate the product's value on the table below:

\$100 to \$350	\$351 to \$500	\$501 to \$750	\$751 to \$1000	\$1001 to \$1500	\$1501 to \$2000
\$49.95	\$79.95	\$139.95	\$169.95	\$199.95	\$259.95

### Apple Printers

Select 310 w/Toner	\$599
LASER 320 w/Toner	\$899
Select 360 w/Toner	\$1299
Pro 630 w/Toner	\$1799
Pro 810 w/Toner	\$4299
Portable StyleWriter	\$349
StyleWriter II Return	\$229
Color StyleWriter PRO	\$599
Color StyleWriter 2400	\$499

### Hewlett Packard

DeskWriter 540	\$299
DeskWriter 560c	\$479
DeskWriter 320	\$319
DeskWriter 320/SHEET	\$379
DeskJet 1200c (PS)	\$1899
LaserJet 4ML	\$989
LaserJet 4MP	\$1199
LaserJet 4M	\$1599
LaserJet 4M Plus	\$1849
LaserJet 4MV	\$2749
ScanJet Ilex	\$929
220 Volt Products	CALL

### HARD DRIVES

Quantum 160MB	\$129
Quantum 250MB	\$199
Quantum 500MB	\$279
Quantum 1GIG	\$569
Quantum 2GIG	\$1099
APPLE 700MB INT	\$349
Barracuda 2.4 GIG	\$1199
FWB Hammerhead	CALL
Micropolis 9GIG 8ms	\$3499

### SCANNERS

Apple Color One	\$699
Agfa Arcus Plus	\$2699
Microtek II	\$639
Microtek IIG	\$459
ScanMaker IIXE	\$959

### Apple Monitors

14" Color Plus	\$299
14" RGB HIRES	\$379
15" MultiScan	\$499
17" MultiScan	\$979
20" MultiScan	\$1949
AudioVision 14" w/adf	\$629

### NEC Monitors

XP15 15" Color	\$599
XE17 17" Color	\$949
XP17 17" 1280X1024	\$1249
XP21 1600X1200	\$2449

### RADIUS Monitors

Precision Color Power 15	\$799
Precision Color Display 17	\$1099
IntelliColor Display 20w 20	\$1849
Precision Color Display 21	\$1995
VideoVision Studio	\$3299
VideoVision Audio Display	\$7999
17T Trinitron	\$949
17T Trinitron	\$1299
PrecisionColor 19w 24k	\$799
PrecisionColor 19w 24k	\$499

### SuperMac

Thunder II GX 1152	\$1649
Thunder 24 V.30	\$599
Thunder IV GX 1600	\$2649
Thunder 24GT	\$1350
SpectrumPower1152	\$1099
17-XL MultiMode	\$929
17T Trinitron	\$949
20+ Color Dual Mode	\$1529
20-TXL MultiMode	\$1749
21-TXL MultiMode	\$1849
20" Hires Trinitron	\$2379
21" Two Page Color	\$1679
20" Grey scale	\$789
21" Greyscale	\$929

**SAME DAY SHIPPING**

**We carry only new products. Let us custom configure your system! We accept VISA, MasterCard, and AMEX.**

CIRCLE 497 ON READER SERVICE CARD



## MAC CITY

QUALITY SERVICE AND VALUE SINCE 1987  
NO SALES TAX OUTSIDE CALIFORNIA  
WE GUARANTEE LOWEST PRICES  
Prices are Subject to change without notice!

INTERNATIONAL ORDERS  
VISA-MC- AMERICAN EXPRESS  
C.O.D. Welcome

**SALES (800)505-8991**

Tel: (818) 505-8991  
Fax: (818) 505-8992

11026 Ventura Blvd STUDIO CITY, CA 91604

### POWER MAC

<b>8100/100</b>	<b>8100/110</b>	
16-1G CD <b>3999</b>	16-2G <b>5299</b>	
8-700 <b>3229</b>	144-2G <b>8649</b>	
<b>7100/80</b>	<b>7100/80 AV</b>	
16-700 CD <b>3179</b>	16-700 CD <b>3410</b>	
16-500 <b>2899</b>	16-0 <b>Call</b>	
<b>6100/66</b>	<b>6100CD/66DOS</b>	
8-350 CD <b>1799</b>	16-500CD <b>2455</b>	
8-350 <b>1599</b>	8-250 CD <b>Call</b>	
<b>8100/100 AV</b>	<b>16-1G CD</b>	<b>4175</b>
<b>8100/80AV</b>	<b>16-500 CD</b>	<b>3399</b>
<b>8100/80</b>	<b>8-0 / 16-500 CD</b>	<b>2349 / 3099</b>
<b>7100/66AV</b>	<b>16-500 CD</b>	<b>2799</b>
<b>7100/66</b>	<b>8-0 / 16-500 CD</b>	<b>1899 / 2599</b>
<b>6100/60</b>	<b>8-0 / 8-250</b>	<b>Call / 1299</b>

### Powerbook

<b>4-320 3289</b>	<b>4-320 3495</b>	<b>20-500 3999</b>
<b>520C 8-160 NEW</b>	<b>12-320 LOW</b>	<b>520 20-X PRICE</b>
150 4-120 1349	Duo 280c 4/320 2999	Duo 280 /270c Call
G.V. Mercury FAX 315	4MB RAM 169	8MB RAM 329
16MB RAM 599	32MB RAM Call	Call for lowest prices

### Mac Performa

Per 475 1095	Apple 14" PLUS 285
Per 630cd Call	Apple 15" 465
Per 638cd 2195	Apple 17 Multi 949
Per 6115 2399	Apple 20T Multi 1899
Per 6118 2845	Sony 17Sel 929
Per 6110 2395	Sony 17af 859
	Sony 15af 439
	Sony 20SE 1795

### Quadra

Q630 4-250 1039	Q630 8-250 1210
Q605 4-160 w/soft 749	Q605 8-160 899
Q610 8-250 1299	Q950 8-0 Call

### HARD DRIVES

Quantum 2.1g 959	Quantum 1g 595
Quantum 540 279	Quantum 350 229
Quantum 170 169	160mb F/PB 179

### Monitor

HP 4ML 969	HP 4MP 1299
HP 4MPlus 1899	HP 4MV 2719
HP Deskwriter 560c 465	HP Deskwriter 540 296
HP D.W. 320 304	

### Printer

Pro 630 1799	Pro 16600 2225
Select 360 1249	Select 320 859
Stylwriter II 279	Color 2400 Call
Stylwriter color pro 569	HP 469
HP 4ML 969	HP 4MP 1299
HP 4MPlus 1899	HP 4MV 2719
HP Deskwriter 560c 465	HP Deskwriter 540 296
HP D.W. 320 304	

### Scanners

Microtek 35T 959	Microtek 11hr 999
Microtek isp 769	Umax UC840 669
Umax UC1200SE 2486	AGFA Arcus II 2597

WE SELL ONLY BRAND NEW PRODUCTS

CALL FOR ANY CUSTOM CONFIGURATIONS

CIRCLE 442 ON READER SERVICE CARD

## COMPUTER GRAPHIC & NETWORKING

We custom configure and test your system. Specialized in Pre-Press, Publishing, Digital Video products.  
WE BUY • SELL • TRADE

PowerMacs	Powerbooks	Upgrades	Printers	Hi-End	VideoCard
8100 110-72/2GB \$CALL	540c 20-540 \$4090	Q/Ctrs 650 to 7100 \$ 999	Select 360 1269	Power Mac 8100/100	Video Vision Studio \$CALL
8100 136-2GB5 7090	540c 12-320 3480	Quadr 840 to 8100/100 1790	DeskWriter 540 299	72MB RAM - 2GB HD - CD	Prec. Color Pro 24X 980
8100 AV 24-1GB-CD 4540	540c 36-540 CALL	Quadr 800 to 8100/80 1375	DeskWriter 560c 495	20" Monitor Tri.	Thunder II GX1360 999
8100 40-1GB 4980	520C 4 - 320 2550	Mac II Ci to 7100 1390	HP Laser 4M Plus CALL	Extended Keyboard \$7940	Thunder II GX 1600 CALL
8100 8-0 CALL	520C 20-340 3075	Q/Ctrs 660AV to 7100 CALL	HP Laser 4MV 2725	Power Mac 7100/80	Call for: SuperMac-Radiux-RasterOp
7100 40-1GB 3725	520 12-340 2399	Quadr 950 to 9150 CALL	Pro810 Demo 20PM 2990	40MB RAM - 1GB HD - CD	We Pay Top \$\$\$
7100 24-700-CD CALL	520 20-160 2325	Quadr 950 to 8100-110 CALL	Other Printers available:	17" Monitor	For Your Mac
7100 16-1GB- AV 3385	180 8-160 1550	Quadr 610 to 6100/66 875	NewGen - QMS	Ext Keyboard Mouse Pad \$4980	TRADE YOUR MAC
7100 8-0 CALL	145 - 170 -160 CALL	Quadr 610 to 6100/66 875		Power Mac 6100/100	FOR NEW ONE
6100 16-500-CD 2090	140 4-40 99	PowerBook Upgrade CALL		24MB RAM - 500 HD - CD	
6100 8-500-Dos Card CALL	Duo 230/250 CALL	Si-LiCH-Q700 to Power PC CALL		17" Monitor	
6100 8-0 CALL	Custom Configuration are available	Call for DEMO units & Upgrades		Ext Keyboard Mouse Pad \$3499	

TEL: 310-441-4771 10922 Pico Blvd. Los Angeles, CA 90064 Fax: 310-441-4770

CIRCLE 432 ON READER SERVICE CARD

## DATA

Dealers & International Sales Welcome!

800-345-1234

TEL: (310) 398-3300

FAX: (310) 391-2488

3847 Grand View Blvd. Los Angeles, CA 90065

Dealers & consultants call for best current prices!

We will meet or beat your best price!

Next & same day shipping available!

Visa & Mastercard accepted.

All prices are 5%+cost \*Verified!

No sales tax for outside of California orders.

\*Prices subject to change without notice!

PowerMac	QUADRA'S	PowerBook's	PRINTERS	UMAX	RADIUS	RasterOps
6100/66	605 4/160 795	Duo 230 4/80 1008	StyleWriter II 289	UC630LE 578	Precision 17" 1330	Photoshop 3.0 for Macintosh 497
8/350	605 8/160 845	180 4/120 1352	StyleWriter color 485	UC640 Kala 806	Intelecolor 20v 1360	
8/350CD 1799	In Stock!	520 4/160 1796	Portable Styl. CALL	UC1280 Full p. 1046	Precision 21" 1945	3FGE 600
AV 8/350CD 2161	610 8/160 1275	520c 4/160 2075	Pro 830 1745	PowerLook 3185	Pivot Display 545	SV 630
16/500D 2499	610 16/160 1275	540c 4/320 CALL	Pro 810 CALL	MICROTEK	Full Page GS 469	4FGE 725
16/161G/CD 2500	950 8/230 2695	540c 12/320M CALL	Laser LS 395	ScanMaker II 487	TFD 20GS 785	5FGE 1065
8/250	950 72/1G/CD 5475	Duo 260/280c CALL	Select 310 535	ScanMaker IIR 887	E-Machine 16" 909	6FGE 1225
8/250CD 2436	950 136/4G/CD 7650	Duo Dock II CALL	Select 360 1165	ScanMaker IIS 2297	Videovision Studio 318	6FGE 2305
8/250CD 2628	Specials	EPSON	DeskWriter 560c 480	ScanMaker IIS 737	FARGO	3FG 2245
8/500CD 2745	HP Laserjet 4M Laser	ES-800C Pro CALL	D Writer 1200c CALL	ScanMaker IIS 737	Prisma Color 799	RELYSIS
16/161G CD 3380	* 600 dpi	ES-1200c Pro CALL	HP Laser 4L 1945	SUPERMAC	Prisma Pro Color 1345	2412 765
AV 16/700CD 3275	* 8 P.P.M. \$1249.	Large format Printers	HP 4M Plus 1945	17T Trinitron 845	Pictura 310 3665	2412T 1175
8/700	* PostScript printer	11x 17 full bleed	AGFA	21TXL Color 1695	Syquest	4816 965
16/1G/CD 3995	Select 310 555	Elite-XL 608/600dpi	Sudio Scan II 995	21TXL Color 1895	88MB 279	4816T 1365
40/2G/CD 5195	Quantum 230int. 149	\$ 2599.	Arcus Plus II 2585	Pressview 21" 3077	200mb 445	6624T 1865
72/4G/CD 7199	Quantum 230Ext. 199	Elite-XL 808/800dpi	RasterOps	Thunder24 945	270mb 495	
AV 16/1G/CD 4160	External HD case 39	\$ 3470.	Duo-Mate/8	Thunder IIx152 1095	128MB Optical 899	
AV 40/2G/CD CALL	Gcc Portab. printer 179	Writemove II	Mini Dock \$185.	Thunder IIx1600 2295	256 MB Optical 1895	
110/16/2G/CD CALL	RasterOps	21" Grayscale 545	Sony 2036-S \$1595.	17" MultiScan \$ 585.	2.4 BarreCUDA Int. 1365	
	20" T. Print. Color 1595.			Thunder 4gx cards Call	2 GIG DAT drive 895	

CIRCLE 464 ON READER SERVICE CARD

## Do Not Let Our Competition's Prices Frighten you!

- Worldwide Shipping
- FedEx & DHL Special Rates
- Lowest Price Guaranteed
- Customizing & Upgrading Systems

CALL US FOR

PowerMacs  
PowerBooks  
Quadras  
& Accessories

- Business Leasing
- 110/220Volt Products
- Product List By Fax
- Immediate Response To Fax Requests

Quantum SONY  
IBM COMPAQ UMAX

radius SUPERMAC  
WACOM TOSHIBA HP HEWLETT PACKARD

Sales  
(818) 787-3282  
Dealer Hotline  
(818) 780-9457

COMPU.D  
International, Inc.  
1-800- 929-9333

Fax  
(818) 787-5555  
Export  
(818) 787-7526

CIRCLE 434 ON READER SERVICE CARD



# CALL THE MAC EXPERTS!

You won't find anyone with more Macintosh expertise than the experienced consultants at PowerMax™. Give us a call today for a competitive quote and expert advice. Make our knowledge your power!

Mac CPU's & Powerbooks	Lasers, Monitors & Scanners	Software & Drives
Quadra 630 4 mb ram / 250.....\$1066	Samsung 17GL 17" 28 Color Mon...\$688	We'll match any software price in this magazine!
PowerMac 6100/66 8 mb ram.....\$1487	Diamond Pro 15FS 15" Cir Mon...\$439	Adobe Illustrator 5.5 w/CD Rom...\$379
PowerMac 7100/80 8 mb ram.....\$2399	NEC Multisync XP21" Monitor...\$2496	Adobe Photoshop 3.0 Software...\$549
PowerMac 8100/100 8 mb ram.....\$2989	Apple Personal Laser 300.....\$629	Canvas Pwr Bundle: call for details...\$279
PowerMac 8100/110 System.....Call!	Texas Instrum. MicroWriter PS23...\$635	External Syquest 200 w/cartridge...\$529
PowerBook 520 4/160.....\$1799	NEC Superscript Model 640 Laser...\$718	PowerMax Ext. 250 Meg. Drive...\$249
PowerBook 520c 4/160.....\$2299	Apple LaserWriter Select 360.....\$1479	PowerMax Ext. 350 Meg. Drive...\$299
PowerBook 150 4/120.....\$1349	Xante 11x17 Laser Auth. Dealer!...Call	PowerMax Ext. 500 Meg. Drive...\$329
Authorized Distributor for the New Mac Clones! Call for Details!	Epson 1200C Scanner.....\$349	PowerMax Ext. One Gig Drive...\$629
Ask about customized configurations - our specialty!	Umax Gemini 800x1600 scanner...Call	PowerMax Array Upgrades.....\$Call
	This is just a small sample of the millions of dollars in inventory we have in stock!	We specialize in hi-performance drives and accessories, and also hard-to-get items!

## The PowerMax Difference

We've been designing complete Macintosh systems since 1987. Most of us at PowerMax have used Macs personally since well before that. What this means is that we don't just sell you a box and hope you never call back. We'll give you some advice, customize and bench-test your system, and support you before, during and after the sale. Call us today to experience the PowerMax™ difference!

**POWER MAX**  
Knowledge is Power

## New PowerMac 6100/66 Super System!

This customized system includes a 700 megabyte hard drive, 16 megs of ram, internal CD rom drive, extended keyboard, 14" color monitor, surge protector, and our PowerGames™ software package. Call us today for this or any Mac system you desire!

**\$2,949 or \$115/mo.\***

\*MAC Based on 36 month lease. Systems may vary from pictures.

**800-844-3599**

24 hour fax line:  
1-503-232-7101

(West Coast - but we're not in California!)

Available terms include:  
COD, Visa, MasterCard, American Express and Company PO's  
Ask about our fantastic business leasing programs!

CIRCLE 446 ON READER SERVICE CARD

**SUPERMAC**

**COMPUTER PROS**

1-800-319-4MAC (4622)

Se Habla Español (305) 825-8709 • Free Shipping with orders over \$500.

**Powerbooks**

PowerBook 150 4/120 \$1395.<sup>00</sup>

Black Bird 520 4/160 \$2100.<sup>00</sup>

Black Bird 520 C 4/160 \$2585.<sup>00</sup>

Black Bird 540 4/240 \$2872.<sup>00</sup>

Black Bird 54012/240 MCD \$3509.<sup>00</sup>

Black Bird 540C 4/320 \$4325.<sup>00</sup>

Black Bird 540C 12/320 MCD \$4945.<sup>00</sup>

P.B. Duo 280 4/240 \$2395.<sup>00</sup>

P.B. Duo 280 C 4/320 \$3315.<sup>00</sup>

Duo Dock II with Ether. \$895.<sup>00</sup>

Newton Message pad 110 \$609.<sup>00</sup>

Newton PCMCIA fax modem \$175.<sup>00</sup>

**CPU**

Quadra 605 4/160 or Performa 475/4/250 with Apple Color Plus Keyboard and software \$1145.<sup>00</sup>

Quadra 630 4/250 \$1099.<sup>00</sup>

P. Mac 6100 8/250 \$1675.<sup>00</sup>

P. Mac 7100/66 8/500 \$2699.<sup>00</sup>

P. Mac 7100/66 AV 16/500/CD \$3435.<sup>00</sup>

P. Mac 8100/80 8/500 \$3875.<sup>00</sup>

Quadra 950 8/0 \$2795.<sup>00</sup>

P. Mac 8100/110 16/2000/CD \$5795.<sup>00</sup>

Server 8150 8/500/4 share \$4799.<sup>00</sup>

Server 9150 8/2000/CD \$6745.<sup>00</sup>

Special Bundles CALL!

**Monitors**

Apple Color Plus 14" \$279.<sup>00</sup>

Apple Color Display 14" \$385.<sup>00</sup>

Apple 14" AV Display \$555.<sup>00</sup>

Apple 15" Color Display \$489.<sup>00</sup>

Apple Multiple scan 17" \$990.<sup>00</sup>

Apple Multiple scan 20" Display \$2025.<sup>00</sup>

Apple Quicktake 100/p.p.c. \$710.<sup>00</sup>

Supermac 17xl monitor \$895.<sup>00</sup>

Supermac 207xl monitor \$1987.<sup>00</sup>

Supermac Thunder/24 \$1689.<sup>00</sup>

Apple Extended Keyboard \$150.<sup>00</sup>

Apple Ergonomic Keyboard \$105.<sup>00</sup>

Apple Design Keyboard \$85.<sup>00</sup>

**Printers/Accessories**

Apple Stylewriter II w/cable \$288.<sup>00</sup>

Apple Stylewriter Pro w/cable \$605.<sup>00</sup>

Apple Select 360w/toner \$1495.<sup>00</sup>

Umax UC-630 Scanner \$749.<sup>00</sup>

Umax UC-1200 SE \$2659.<sup>00</sup>

HP II CX Scanner \$995.<sup>00</sup>

Microtek II XE \$945.<sup>00</sup>

GCC Printers Call!

External CD w/speakers \$299.<sup>00</sup>

**Computer Pros, Miami FL**  
(800) 319-4622  
International Orders Call:  
(305) 825-8709

Prices reflect cash discount. Prices subject to change.

Leasing Plans Available

# SYSTEMS PARTS UPGRADES

## Clearance Sale!

SE POWER SUPPLY .....	129.
SE ANALOG BOARD .....	149.
APPLE 40-MEG TAPE BACK-UP .....	129.
LASERWRITER TO PLUS ROM UPGRADE .....	99.
ADB MOUSE .....	49.
IIcx/IIci POWER SUPPLY .....	149.
1200 BAUD PERSONAL MODEM W/CABLE .....	29.
LC ETHERNET BOARD .....	49.
CRT & YOKE ASSEMBLY FOR PLUS & SE .....	49.
MAC PLUS KEYBOARD .....	69.
MAC PLUS MOUSE .....	69.
PORTABLE 2400 BAUD INTERNAL MODEM .....	169.
40-MEG EXTERNAL HARD DRIVE .....	169.
MAC CLASSIC POWER SUPPLY .....	99.
APPLEDESIGN POWERED SPEAKERS .....	99.
PERSONAL NT LOGIC Bd. ....	149.
MAC PLUS POWER SUPPLY .....	119.

## MONITORS

•APPLE 14" BASIC COLOR VGA .....	169.
•APPLE PORTRAIT DISPLAY .....	299.
•E-MACHINES E20 (NEW) .....	1299.
•E-MACHINES T16 TRINITRON (NEW) .....	899.
•14" HIGH-RES TRINITRON 832x624 .....	299.
•NEW RADIUS COLOR PIVOT/LE WITH CARD .....	699.



## LOGIC BOARD EXCHANGES!

**MAC IIX TO IIFX: \$399**

40 MHZ, MATH CO-PROCESSOR, WICKED-FAST!

**Brand New! IIVX TO CENTRIS 650: \$599**

25 MHZ 68040, BUILT-IN ETHERNET

**IIci TO CENTRIS 650: \$599**

Price includes installation!

**LCIII TO QUADRA 605: \$299**

'040 at 25MHz

**CENTRIS 610 TO QUADRA 660AV: \$399**

25 MHZ, FLOATING POINT UNIT, ETHERNET, A/V TECHNOLOGY

**QUADRA 800 TO 840AV: \$599**

40 MHZ 68040, A/V TECHNOLOGY, 66 MHZ DSP

## E-MACHINES DOUBLECOLOR SX



Accelerated 8-bit video • Hardware Pan & Zoom  
• Virtual Screens •  
• Switchable Resolutions •

Ink refill kits available!



**\$649**  
New

Apple® Color Printer

11x17 • 360 dpi • ColorSync color-matching •  
Mac and IBM compatible (SCSI or parallel) •  
64 scalable TrueType fonts •  
also known as the  
Canon BJC-820

**SHREVE SYSTEMS**

1200 MARSHALL ST. SHREVEPORT, LOUISIANA 71101  
FAX 318-424-9771 • TECHNICAL SUPPORT 318-424-7987  
CUSTOMER SERVICE • PURCHASING • INFO 318-424-9791

ORDERS ONLY

**800-227-3971**

All equipment is used or demo unless indicated "new". Refurbished equipment carries a 120-day warranty. Returns subject to a 20% restocking fee. Prices subject to change and reflect a 2% cash discount.

CIRCLE 425 ON READER SERVICE CARD



# SYSTEMS & PERIPHERALS



## ADVANCED MAC SYSTEMS

800.847.4622

TEL: (310) 314-7372

FAX: (310) 314-7512

Prices are subject to change without notice

### Printer

LaserWriter Select 360 .....	1299
LaserWriter 16/600 PS .....	2189
LaserWriter Pro 810 .....	4429
StyleWriter Color 2400 .....	499
StyleWriter II w/Cable .....	289
HP Deskwriter 540 .....	299

### Power Mac

6100/66 8/250 .....	1339
6100/66 16/500-CD .....	2169
6100/66 AV 16/500-CD .....	2699
6100/66 16/500-Dos .....	2429
7100/66 16/500-CD .....	2489
7100/80 24/500 .....	3089
7100/80 AV 16/700-CD .....	3259
8100/100 AV 16/1gb-CD .....	4139
8100/100 40/1gb-CD .....	4819
8100/100 24/700 .....	3769
8100/110 16/2gb-CD .....	5529

### Monitor

SupreMatch 20TXL .....	2099
Pressview 21T .....	2989
SupreMatch 20 Plus .....	1499
Sony 17SE1 MultiScan .....	989
NEC Multisync XV15 .....	489
Apple 14" ColorPlus .....	289
Apple 15" MultiScan .....	469
Apple 16" RGB .....	889
Apple 17" RGB .....	929
RadiusTwo Page 20GS .....	869

### Video Card Hard Dr.

Thun.II GX 1360 .....	129
Thun. IIGX 1600 .....	139
Percl. Pro 24X .....	169
Percl. Cir 24XP .....	189

### Powerbook Performa

520 8/160 .....	1969
520C 8/160 .....	2449
540C 8/320 .....	3549
150 8/120 .....	1579

### International Orders Welcome

CIRCLE 470 ON READER SERVICE CARD



## MacAttack

(800) 299-MACS (800) 299-6227

409.690.5353 (Fax) 409.690.5345 (Intl. Sales)

Contact Us Via Internet! MASales@aol.com

### We Attack High Prices!!

We carry hundreds of items—call for availability. Your satisfaction is our goal. One Year Warranty on Apple Products. Prices are COD and subject to change—please call for latest pricing. International Orders and Fax Orders Welcome!

### PowerMacs

6100/66 8/250 .....	\$1566
6100/66 8/350 CD .....	\$1858
6100/66 16/500 DOS CRD .....	\$2526
7100/80 8/500 .....	\$2655
7100/80 8/700 CD .....	\$2966
7100/80 16/700 CD AV .....	\$3506
8100/100 8/700 .....	\$3322
8100/100 16/1G CD .....	\$4095
8100/100 16/1GB CD AV .....	\$4292
8100/110 16/2000 .....	\$5729

### Quadrads

Quadra 630 4/250 .....	\$1083
Quadra 950 8/0 .....	\$2737

One Year Warranty On New Macs!!  
We sell only Apple original serial numbers.

### Monitors

Apple Color Plus 14" .....	\$291
AudioVision 14" .....	\$565
Apple Multiscan 15" Display .....	\$466
Apple Multiscan Trinitron 17" .....	\$960
Sony Multiscan 17" .....	\$1021
Apple Multiscan 20" .....	\$1930
Apple Multiscan 20 Display .....	\$1930
RasterOps .....	\$CALL
SuperMac Monitors .....	\$CALL
Supermatch 17" Professional .....	\$850
Sony 17" Color .....	\$978
E Machines T 16 .....	\$1116
NEC 5FG .....	\$1246
NEC 6FG .....	\$2330

### Printers

StyleWriter II .....	\$291
Color StyleWriter 2400 .....	\$481
Apple Color StyleWriter Pro .....	\$576
LW Select 320, 360 .....	\$CALL
1600dpi w/Toner .....	\$2181
LW Pro 810 .....	\$4374
HP LaserJet 451 .....	\$3222
HP LaserJet 451 MX .....	\$4717

### Powerbooks

Duo Dock II .....	\$844
150 4/120 .....	\$1372
Duo 280c 4/320 .....	\$3272
Duo 280c 12/320 Modem .....	\$3742
520 4/160 .....	\$2046
520c 4/160 .....	\$2568
520c 12/320 Modem .....	\$CALL
540c 4/320 .....	\$3599
540c 12/320 Modem .....	\$CALL
540c 12/500 Modem .....	\$CALL

### Software

Quicken 5.0 .....	\$39
MYST CD-ROM .....	\$48
Microsoft Encarta 1995 (CD-ROM) .....	\$88
Norton Utilities 3.1 .....	\$95
Canvas 3.5 .....	\$261
SoftWindows .....	\$262
Excel 5.0 .....	\$301
FileMaker Pro 2.1 .....	\$CALL
MS Office 4.2 (CD-ROM or disk) .....	\$CALL
Aldus PageMaker (i86) .....	\$516
Aldus PageMaker (PowerMac) .....	\$564
Adobe Illustrator (PowerMac) .....	\$393
Adobe Photoshop 3.0 .....	\$580
Quark XPress (i86) .....	\$604
Quark XPress (PowerMac) .....	\$699

### Modems

GV TelePort Gold II .....	\$137
GV PowerPort Gold .....	\$282
GV PowerPort 500 Series .....	\$328
GV PowerPort Mercury Pro Duo .....	\$342
Geoport Telecom Adapter .....	\$114
SupraFax 14.4k LC .....	\$143
SupraFax v32bis .....	\$201
SupraFax 28.8k .....	\$289

### Scanners

HP Scanjet IIP .....	\$737
HP Scanjet IICx .....	\$989
Apple One Scanner .....	\$628
Apple Color One Scanner .....	\$870
AGFA Studio Scan II .....	\$855
Other AGFA Scanners .....	\$CALL

### Keyboards

Apple Design Keyboards .....	\$75
Apple Adjustable Keyboards .....	\$103
Apple Extended Keyboard II .....	\$162

### CDs

Apple CD 300 Plus External .....	\$308
Apple CD 300 Plus .....	\$289
Apple CD Multimedia Kit .....	\$421

### Other Stuff

Omega Cartridges 44/88 MB .....	\$52/62
Kensington Turbo Mouse .....	\$110
Apple Quick Take 100 .....	\$373
Quadra 650 Multimedia Access .....	\$CALL
PLI (Syquest) 44, 88, 200, 270 .....	\$CALL

### FREE

Mousepad With Every Order!!

We ship Federal Express International shipments

Handled by DHL

COD, Mastercard, and VISA accepted

Hours: M-F, 9-7 CST, 19% Restocking Fee for Returned Merchandise.

## No backorders.

We're serious. At AEON TECHNOLOGY we specialize in optical storage products and memory, with service you can count on. Our sales representatives understand the hardware, and can give you a solution no matter what platform you're on, when you need it. Most of our products are stocked on location, which means they can be shipped to you the next business day. Call for prices on any items not listed.

Government, School & Corporate PO's accepted.

Minimum Five Year Warranty on most items.

MEMORY	DRIVES	M.O. MEDIA
Pwrbk 500 Series .....	8/16/32 .....	315/595/1230
Duo 280 Series .....	8/28/28 .....	320/785/1050
PowerMac .....	16/32/64 .....	435/849/2050
8mbx .....	70ns .....	285
16mbx .....	70ns .....	495
16mbx2 .....	60ns .....	2330
Plus tons more!	Prices call for configurations not listed	
AEON TECHNOLOGY	Authorized reseller for:	
Apple	IBM	SONY
Perceptics	FUJITSU	FWB
QUANTUM Empire 1GIG HD .....		595
QUANTUM Empire 2GIG HD .....		1322
PINNACLE 1.3Gig MD .....		2499
SHARP 1.3Gig MD .....		1800
FUJITSU 230Meg MD .....		799
Active SCSI 2 Terminator .....		30
120Meg Cartridge .....		19
128Meg FM10 Cartridge .....		22
230Meg Cartridge .....		31
450Meg Cartridge .....		64
1.2Gig Cartridge .....		80
1.3Gig Cartridge .....		80

Mon-Fri 9am-6pm (CST) and then some

9111 Jollyville Road #103 Austin TX 78759

Fax: (512) 338-1665

International (512)-338-4834

E-Mail: sales@aemon.com

WWW: http://www.aemon.com/aemon.html

1-800-937-2366

AEON TECHNOLOGY

CIRCLE 437 ON READER SERVICE CARD

## LOWEST PRICES BEST SERVICE

## QUADRAS POWERBOOKS

## PRINTERS MONITORS

## POWER PCs CALL FOR QUOTES

800-799-4622

310-358-9000

FAX 310-358-9100

Dealers & International Orders Welcome

Same Day Shipping in USA

We Only Sell Brand New Systems

Full One-Year Warranty

"Best Computer Source"

- Computer Magazine



## COMPU AGE

THE SOURCE TO MACINTOSH WORLD

318 N. LA CIENEGA • LOS ANGELES, CA 90048

CIRCLE 542 ON READER SERVICE CARD



# ICN

INTERNATIONAL COMPUTER & NETWORKING  
TRADE-INS • UPGRADES • SYSTEMS • PARTS

## LOOK



AT OUR PRICES

**UPGRADE OR  
TRADE YOUR  
OLD MAC FOR  
A POWER  
MACINTOSH**

Prices Subject to Change

## TRADE IN YOUR OLD MAC FOR A NEW MAC

**WE CARRY: NEC • SUPERMAC • RADIUS • SONY**

### POWERMACS

8100/110	CALL
8100/100AV 16/1G/CD	\$4350
8100/100 8/700	\$3395
7100/80 8/700/CD	\$2750
7100/80AV 16/700/CD	\$3570
7100/66AV 8/500/CD	\$2995
6100/66 8/350	\$1790
6100/66 8/500/CD	\$1990

### POWERBOOKS

540C 4/500	\$3595
520 4/160	\$1840
520C 4/160	\$2285
180 4/80	\$1890
DUO280 4/240	\$2450
DUO280C 12/320/M	\$3590

### QUADRAS

840AV 8/230 D	\$2890
800 8/230 D	\$2380
650 8/230 D	\$2090
610 8/230/FPU	\$1100
660AV 8/230 D	\$1475

### MONITORS

14" COLOR PLUS	\$295
15" MULTISCAN	\$465
17" APPLE COLOR	\$950
17" T SUPERMAC	\$760
20V RADIUS	\$1380
21" APPLE D	\$1495

### COMPLETE UPGRADES

LCII, LCIII to Q 605  
**\$495**

C610, Q610, Q660AV  
to 6100/66mhz  
**\$895**

IIVX, Q650, C650  
to 7100/80mhz  
**\$1650**

Q800, Q840AV  
to 8100/80mhz  
**\$1650**

### PRINTERS

PRO 630 600DPI	\$1849
PRO 810 800 DPI	\$3995
SELECT 320	\$869
SELECT 360	\$CALL
HP INKJET 310 DEMO	\$275
LASERWRITER 2400	\$465

### SPECIALS

**QUADRA 605 4/160  
EXT. KEYBOARD,  
14" COLOR MONITOR  
\$1145**

**EXCHANGE  
ANY OLD  
POWERBOOK  
TO NEW 500  
SERIES**

call.... **ICN**  
**310-445-6600**

FAX: (310) 445-6611

2045-B South Barrington Avenue  
Los Angeles, California 90025

## WE BUY and SELL NEW and USED MACS

CIRCLE 439 ON READER SERVICE CARD

## LOWEST PRICES GUARANTEED

### Power Macintosh CPUs

6100/66 8/350	\$1599
6100/66 16/1GB	\$2395
6100/66 8/350/CD	\$1849
6100/66 AV 8/350/CD	\$2299
7100/80 8/500	\$2499
7100/80 8/700/CD	\$2849
7100/80 40/700/CD	\$3749
7100/80 av 16/700/CD	\$3395
8100/80 16MB/0	\$2599
8100/100 8/700	\$3195
8100/100 16/1GB/CD	\$3989
8100/100 72/1000/CD	\$5639
8100/100AV 16/1GB/CD	\$4259
8100/110 16/2GB/CD	\$5695
Q630 4/250	\$1059
Q630 8/250 CD	\$1648
Q630 20/250/CD	\$1968
Q650 8/230	CALL
Q610 8/230	CALL
Q950 16/500	\$3385

### Agfa Scanner & Servers

Agfa Studio Scan II LE	\$889
Agfa Argus II Plus W/Transparency	\$2695
Adaptor & PhotoShop	\$2695

AWS 6150 8/500/CD/A.S	\$2985
AWS 8150 8/500/AppleShare	\$4129
AWS 8150 16/1000/cd/DAT/As	\$6195

### Blow Out Models

APPLE CD 300e External	\$298
Quadra 605 4/160	\$759
Includes ClarisWorks, QuickDraw, Amiga, Full Connect, File Duo, Common Ground, Working Water Marker, and American Heritage Dictionary	
PB 180 4/80 ref	\$1959
Apple 21" Color .Ref	\$1199
Portable StyleWriter	\$269

### PowerBooks

PB 150 4/120	\$1329
PB 150 8/120/Mod	\$1799
PB 520 4/160	\$1749
PB 520 8/160/Mod	\$2298
PB 520c 4/160	\$2195
PB 520c 12/320/Mod	\$2898
PB 540c 4/320	\$3459
PB 540c 12/500/Mod	\$4395
Duo 280c 4/320	Call
Duo 280c 12/320/M	Call
Duo Dock II	\$898
DUO FLOPPY DRIVE	\$149
Global Village PP Mercury	\$326
Global Village PP Gold	\$259

### Monitors

Apple 14" Plus	\$289
Apple 14" AV	\$549
Apple 15" M-Scan	\$489
Apple 17" M-Scan	\$949
Apple 20" M-Scan	\$1895
Apple 21" Color Ref	\$1199
SONY 17-SE1/P	\$959
SONY 17SF1	\$899
SONY 15-SE1 COL	\$469
SONY 20 SE1/T	\$1879
SUPERMAC 21TXL	\$2085
SUPERMAC 17T Pro	\$829
NEC XE17 17" Color	\$1039
NEC XE21 21" Color	\$1995
NEC XP21 21" Color	\$2459
Radius IntelliColor 20c	\$1819

**Custom Configuration  
Available**

Mon-Fri 8:00 To 6:00 Since 1988  
SAT 10:00 TO 2:00 PST  
1941 Freeman #B  
Signal Hills, CA 90804  
Fax (310) 498-0032  
In So. California (310) 498-1230

### U-Max COLOR SCANNER & Dr

UMAX UC630LE w/PHOTOSHOP LE	\$595
U-MAX UC840W/PHOTOSHOP	\$899
U-MAX PowerLook Color	\$2859
U-Max 1260 PRO	\$1129
Syquest 88c Ext Dr	\$389
Syquest 200 MB Ext	\$545
Syquest 270 MB Ext	\$549

### Printers

Personal LaserWriter 320	\$898
LaserWriter Select 360 (10PPM)	\$1448
Color StyleWriter 2400	\$509
LaserWriter 16/600 PS	\$2198
HP DeskWriter 540	\$298
HP DeskWriter 560c	\$589
HP DeskWriter 320 w/CSF	\$389
HP Color Laser	\$5985
HP LaserJet 4 M Plus	\$1989
HP LaserJet 4 MV	\$2895

**Buy it Today  
Get it Tomorrow** **FedEx**  
Federal Express

**MacBase** <sup>TM</sup> U.S.A.  
Formerly known as MacExpress U.S.A.

**(800) 951-1230**

CIRCLE 443 ON READER SERVICE CARD





**TO ORDER CALL**  
**800-223-4622**  
 Apple brand 160MB HD/ PowerBook \$179  
 Lower price on PowerMac  
 C91567 → 6100/60MHz, 8/250 .. 1349  
 C17955 → 7100/66MHz, 8/500 .. 2199  
 C07119 → 8100/80MHz, 8/500 .. 2695

**We Carry New Products Only!**

Ask for free CD Title when you purchase a complete system

**PowerMac 8100, 110MHz**, PowerPC 601 RISC Processor  
 C28918 → 72MB/2GB/Apple CD Plus/4MB Vram/21" Monitr. 10777  
 C63553 → 40MB Memory/2GB HD/Apple CD Plus ..... 6666  
**PowerMac 8100, 100MHz**, PowerPC 601 RISC Processor  
 C93969 → 40/2GB/4mb vram/20" monitor/Extended keyboard 6999  
 C40961 → 24/1GB/CD ..... 4444 C61129 → 72/2GB/CD ..... 5969  
 C97336 → (AV Model) 40MB/1GB/CD ..... 4799

**PowerMac 7100, 80MHz**, PowerPC 601 RISC Processor  
 C88231 → 24/1GB/2vram/17" Monitor/Extended keyboard ..... 4666  
 C48235 → 24/700MB/CD . 3466 C71048 → 72/1GB/CD ..... 5055  
 C52636 → (AV Model) 16MB/700GB/Apple CD/2Vram . 3433

**PowerMac 6100, 66MHz**  
 Complete Package a Value  
 C55293 → 16/350MB/SonyCD/  
 Sony 17"sf Color/Keyboard \$2999  
 C80150 → 16MB/350MB/CD ..... 2188  
 C54262 → 16/350/14" monitor/key. 2199

C92737 → **Quadra 950**  
 72MB/1GB HD/Syquest 88C Internal  
 \$5799  
**Quadra 630, 33MHz, 68040**  
 C88604 → 8/500/Sony CD ..... 1699  
 w/ free Microsoft word

free Case with Purchase of PowerBook 500 series (Limited Quantities)

**PowerBooks 520, 25 MHz, 68LC040**  
 C00725 → 8/160/19.2Fax\*Modem .. 2299  
 C69011 → 12/320/19.2Modem ..... 2799  
**Due 280-280c, 68LC040, 33MHz**  
 C32639 → (280) 4/240MB ..... 2466  
 C29334 → (280C) 4/320MB ..... 3299

**PowerBooks 520C 25 MHz, 68LC040**  
 C25976 → 8/320/19.2Fax\*Modem .. 2999  
 C09763 → 12/500/19.2Fax\*Modem 3299  
**PowerBooks 540C 33 MHz, 68040**  
 C04711 → 8/320/19.2Fax\*Modem 3859  
 C69884 → 36/500/19.2Fax\*Modem 4999

**Apple Printers**  
 S49626 → Personal 320 ..... 895  
 S88974 → Select 360 ..... 1489  
 S48237 → LaserWriter 16/600ps 2298  
 S77233 → Color Stylewriter 2400 ..... 498  
 S79936 → Stylewriter II ..... 285  
 S69445 → Color Stylewriter Pro ..... 595  
 C47564 → Workgroup Server 8150  
 Power PC 601 RISC, 80 MHz, \$6399  
 16/ 1000 MB HD, CD, DAT, Share 4.0.2

**Apple Monitors**  
 S33488 → 14" Color Plus ..... 298  
 S52267 → Multiple Scan 15" ..... 479  
 S13916 → Audio Vision 14" ..... 549  
 S58865 → Adapter/ non PowerMac ... 38  
 S18663 → Multiple Scan 17" ..... 988  
 S36320 → Multiple Scan 20" ..... 1979  
 C67689 → Workgroup Server 9150  
 Power PC 601 RISC, 80 MHz, \$7777  
 16/ (2)1GB Array, CD, DAT, Share 4.0.2

**UMAX**  
 S05859 → Adapter ..... 489  
 S72695 → PowerLook w/transpa 2899  
 S31595 → PowerLook ..... 2299  
 S17617 → UC1260/Photoshop ..... 1088  
 S93394 → UC1260/Photoshop LE ..... 969  
 S81056 → Vista S6/Photoshop ..... 979  
 S90106 → Vista S6/Photoshop LE ..... 866  
 S76655 → UC630 Photoshop LE 589  
 S63855 → UC630/Photoshop ..... 689  
 S01511 → Vista S6/Photoshop ..... 849  
 S97735 → Automatic Feeder ..... 489  
 S31595 → Gemeni GD16 Pro ... 1499  
 S20847 → Gemeni GD16 LE ..... 1399

**MICROTEK**  
 Better Images Through Innovation.  
 S85997 → III/Photoshop ..... 2469  
 S01547 → TransparencyAdapter ..... 139  
 S34914 → II/IE/Photoshop ..... 888  
 S08272 → IISXP/Photoshop ..... 899  
 S26358 → IIS/Photoshop LE ..... 747  
 S76072 → II /Photoshop LE ..... 488  
 S12234 → II HR ..... 999  
 S90725 → IIG ..... 389  
 S64364 → Slide Scanner 35T ..... 959  
 S95012 → Automatic Document Feeder ... 388  
 S95012 → TransparencyAdapter, IIXE  
 IIS, IISXP, II, IHR ..... 509

**EPSON Scanner**  
 S15664 → Epson ES-1200C Pro . 1249  
 S84115 → Stylus Color Printer ..... 549  
**AGFA Scanner**  
 P87917 → Arcus II ..... 2595  
 P62797 → Studio Scan II ..... 949  
 P46503 → TransparencArcus II 369

**NewGen 1200 DPI Printer**  
 P77919 → ImagerPlus 12/Ethernet 5795  
 P12777 → Design Express B ..... 5595  
 P85963 → DesignExpress oversized 6299  
**GCC 1200 DPI PRINTER**  
 P38917 → 1200 ..... 5699

**NEC Monitor**  
 M93093 → 14 MultiSync 2V ..... 335  
 M39975 → 15 MultiSync 3V ..... 469  
 M69907 → 15 MultiSync XP15 ..... 699  
 M72905 → 15 MultiSync XE15 ..... 569  
 M91997 → 17 MultiSync XP17 ..... 1299  
 M14342 → 17 MultiSync XE17 ..... 1019  
 M36857 → 21 MultiSync XP21 ..... 2499  
 M69578 → 21 MultiSync XE21 ..... 2044

**Texas Instrument**  
 P76630 → microLaser PowerPro . 1649  
 P88006 → microLaser Pro600 65font 1569  
 P48501 → microLaser Pro600 23font 1195  
**Sony Monitor**  
 M03547 → 15SF ..... 477  
 M88050 → 17SE1 ..... 989  
 M91567 → 17SF ..... 855

**WE HAVE THE BEST PRICE ON MEMORY ANYWHERE**  
**MAC 72 PIN SIMMS**  
 (LCIII, CENTRIS, QUARDA, POWERMAC)  
 S48235 → 4MB 32bit 72pin 70ns ..... CALL  
 S52636 → 4MB 32bit 72pin 60ns ..... CALL  
 S87529 → 8MB 32bit 72pin 70ns ..... CALL  
 S71048 → 8MB 32bit 72pin 60ns ..... CALL  
 S51821 → 16MB 32bit 72pin 70ns ..... 444  
 S52404 → 16MB 32bit 72pin 60ns ..... 459  
 S33362 → 32MB 32bit 72pin 70ns ..... 877  
 S46369 → 32MB 32bit 72pin 60ns ..... 899

**PINNACLE MICRO Opticals**  
 L81817 → Optical Sierra 1.3 (19ms) ..... 2199  
 L74952 → Optical Tahoe 230 V/Cartr ..... 869  
 L84637 → **Recordable RCD 1000**  
 1 MB cache \$1749 Double speed  
**OPTICAL VERBATIM CARTRIDGES**  
 L40801 → 128MB 3PACK ..... \$89 L65424 → 128MB 10PACK ..... \$250  
 L05998 → 230MB 3PACK ..... \$115 L42607 → 230MB 10PACK ..... \$350  
 L93161 → 1.3GB 2PACK ..... \$155 L59920 → 1.3GB 4PACK ..... \$289

**Nikon ELECTRONIC IMAGING Scanner & Printer**  
 S69774 → CoolScan External ..... 1333  
 S41688 → ScanTouch 1200DPI ..... 1099  
 S43808 → Transparency 5X6 ..... 599  
 P76038 → CoolPrint ..... 1419  
 A29841 → 100 sheet Print Pack ..... 85

**Quantum Daytona PowerBook Drive**  
 Capacity Access Internal  
 H33611 → 341MB 17ms 319  
 H34952 → 514MB 17ms 439  
**Quantum 3 1/2 inch Drives**  
 Capacity Access External  
 H76655 → 730MB 11ms ..... 359  
 H65855 → 1080MB 9.5ms ..... 599  
 H80150 → 2100MB 9.5ms ..... 949  
 H54262 → 4200MB 8.6ms ..... 2269  
 We carry both Internal and External drives.  
 All drives are tested and come with the latest FWB HDT  
 tool kit. External Drives come with  
 SCSI Cable & Terminator. All drives come with full  
 factory warranty.

**EXABYTE Tape Backup**  
 T83149 → 8205, 2-5GB, 263kb/s 8mm 1366  
 T76988 → 8505, 5-10GB, 500kb/s 8mm 2144  
 S29852 → Retrospect 2.1 ..... 99  
**MEDIA**  
 (4MM) 60/90/120 Meters ..... 10/12/25  
**MICROPOLIS Micropolis AV Drives**  
 Capacity External  
 H37888 → 2.1GB, 8MS, 7200RPM .. 1158  
 H62028 → 3.6GB, 11MS, 5400RPM .. 1349  
 H77919 → 4GB, 8.5MS, 7200RPM ..... 2085  
 H12777 → 9.0GB, 11MS, 5400RPM .. 3444  
**Seagate**  
 Capacity External  
 H85963 → 2.4GB Barracuda2 8ms 1199  
 H38917 → 4.2GB Barracuda4 8ms 2255  
 H76630 → 9.0GB Elite 9 11ms 3499  
 H88006 → 2.4GB Barracuda2 Wide 1479  
 H48501 → 4.2GB Barracuda4 Wide 2595

**SONY Tape Backup NU DESIGN**  
 T98736 → 4GB ..... 999  
 T13602 → Compression up to 8GB ..... 1129  
 S29852 → Retrospect 2.1 ..... 99  
**MEDIA**  
 (8MM) 54/112 Meters ..... 15/17

**radius SUPERMAC Monitors**  
 M48663 → Precision 17" Flat ..... 999  
 M54164 → Precision 20e ..... 1855  
 M32639 → 2 page 21GS ..... 979  
 M29334 → Press View 21T ..... 2999  
 M02488 → SuperMatch 21TXL ..... 1890  
 M91245 → SuperMatch 17T ..... 850  
 M58492 → SuperMatch 20Plus ..... 1429  
**Video Boards**  
 V32368 → Spigot Power AV ..... 749  
 V27001 → Precision Color 24XP ..... 279  
 V33062 → Precision Color 24Xk ..... 722  
 V85828 → Precision Color 24X ..... 899  
 V22421 → Spectrum power 1152 ..... 899  
 V05597 → SpectrumSeries V 24 Bit ..... 555  
 V87637 → Thunder IIGX 1152 ..... 1299  
 V28834 → Thunder IIGX 1360 ..... 1499  
 V14346 → Thunder IIGX 1600 ..... 1799  
 V74103 → Thunder IVGX 1152 ..... 1799  
 V24200 → Thunder IVGX 1360 ..... 2099  
 V87308 → Thunder IVGX 1600 ..... 2599  
 V07351 → Video Vision Studio NuBus 3479  
 V09172 → Thunder 24 GT ..... 1349

**ASANTE Networking**  
 N13363 → 10BT Hub/12 10T, Thk, Thin . 355  
 N58731 → Media Adapter ..... 59  
**HEWLETT PACKARD Printers**  
 P83974 → 4ML 300X300, 4PPM ..... 999  
 P33339 → 4MPUS ..... 1949  
 P31662 → AMV 600X600, 4PPM ..... 1358  
 P93526 → 4MV 600X600, 11X17 TRAY 2750  
 P20492 → 320 600X300 3PPM ..... 299  
 P02011 → 320 600X300/cutsheet feeder 369  
 P85393 → 540 600x300 3PPM ..... 281  
 P97265 → 560C 600X300, 3PPM ..... 529  
 P47070 → 1200CPS 600X300, 6PPM . 1599  
**WACOM Tablets**  
 T16656 → ARTZ 6x8 ADB Tablet ..... 299  
 T16656 → ARTZ 6x8 ADB/Fractal Pantir 474  
 T30168 → Art Pad ..... 169  
 T42751 → UD 12X12 STANDARD ..... 499  
 T09994 → UD 12X12 Electrostatic ..... 799  
 T07972 → UD 12X18 STANDARD ..... 699  
 T19731 → UD 12X18 Electrostatic ..... 809  
 \* All Returns are subject to restocking fee, must be in original package, condition & needs an RMA#  
 \* All Prices reflect a Cash Discount. Any other method is 2% higher  
 \* Prices are subject to change without notice  
 Address: 6924 CANBY AVE UNIT#104  
 RESEDA CA. 91335  
**International Call: 818-708-6388**  
**Customer Service and Technical support Call: 818-708-6388**  
**Fax: 818-708-6399**



**Big Mac**  
Computers, Inc.  
Division of WCN

## Work Group Server

95	16/500DAT	3495
80	16/500DAT	4295
6150	8/500CD	2650
	Upgrade 95 to 9150	2195
	AppleShare	995
	Apple 4GB DAT	500

## Apple Monitor

15" H-Res.	350
14" Color Plus	320
17" Color	839
14" AV/20"	579/1950

## Apple Printer

320/630	950/1850
16/600	2250
360/810	1195/4395

## Scanners

AGFA Studio Scan II	825
AGFA Horizon	16900
AGFA Arcus Plus II	2650
AGFA ProColor Premier	CALL
Umax Color Look	2879
PixieCraft (Xerox) 4000	2150
PixieCraft (Xerox) 8000	9995

10837 SANTA MONICA BLVD. LOS ANGELES, CA 90025  
Tel: (310) 470-7099 • Fax: (310) 470-8099

**Toll FREE: (800) 761-1999**

Any Custom Config.  
Available

## Call for New Generation of POWERMAC'S

	8/0	8/700	16/1GB	24/1GB	40/2.0GB	72/2.4GB	136/4.0
6100/60	1195	1395	1995	2295	3145	4095	N/A
6100/60AV	1645	1865	2465	2765	3645	4545	N/A
6100/66	1376	1599	2199	2499	3376	4276	N/A
7100/66	1700	1930	2530	2830	3700	4600	7400
7100/66AV	2150	2380	2980	3296	4150	5050	7850
7100/80AV	2550	2775	3375	3675	4550	5450	8250
7100/80	2325	2545	3145	3445	4320	5220	8020
8100/80	2395	2595	3195	3495	4395	5495	8095
8100/80AV	2695	2930	3530	3830	4700	5595	8395
8100/100	2895	3130	3820	4120	4899	5300	8595
8100/100AV	3095	3320	3920	4220	5099	6000	8800
8100/110	4495	4795	5325	5625	6499	7395	10195

APPLE CD 300I PLUS ADD \$300. • SOFTWARE ADD \$150. • 1MB V-RAM ADD \$75.

## Printers & H.P.'s

Laser 4M/4M+	1595/1899
Laser 4ML/4MP	969/1299
Laser SIMX	4240
Deskwriter 540/320	295/315
Deskwr. 560C/310C	495/335
HP 4MV	2695
ScanJet IICX	850
DeskJet 1200 PS	1895
GCC, Xante & QMS	CALL

## SPECIAL..

8100/100 8/700 CD  
**\$3450.**

## Audio Video

Thunder/24	699
Thunder IIGX 1360	1595
Radius Video Vision Pro	7995
Radius Video Vision 2.0	3195
Phillips CD ROM Rcdrr.	CALL

## Demo MAC's

950	8/500	2995
840/800	8/230	2395
LCII	4/80	395
PB 520/520C	4/160	1895/2150
MAC IIS/Ci	3/40	350/650

**Exchange any old MAC to NEW POWER MAC**

Adult CD's  
Call for FAX list

Call for APPLE 3rd party products • International Orders, Visa, MC & AmEx Welcome • Next Day Shipping for U.S.A. & International  
Prices are subject to change w/o notice & limited quantity • All prices shown are C.O.D. Prices

CIRCLE 453 ON READER SERVICE CARD



TEL • 818 • 719-9200

FAX • 818 • 719-9115

**PROFESSIONAL INC.**

• No Tax Outside CA. • Dealers & International Orders Welcome •  
6430 Varier Ave. #105, Woodland Hills, CA 91367 • 1YR. Warranty

## POWER BOOKS

540c	8/320	3450
540c	12/240	3450
540c	20/500	3895
520	8/160	1995
520	12/320	2395
520c	8/240	2595
520c	12/320	2795

## PRINTERS

CLR STYLEWTR 2400	455
CLR STYLEWTR PRO	595
LASER 320/360	899/1299
LASER 16/600	2227
HP 540/560C	307/599
HP 4ML/4MP	987/1287
HP 4MV	2747
HP 1200 c/ps	1595
GCC 600	3695
GCC 600 PRO	4695
GCC 1200	5895
FARGO PRIMERA	895
FARGO PR. PRO	1395
KODAK COL. EASE	5350
NEC SP.SCRIPT 3000	CALL
NEC SP. SCRIPT 640	775
QMS PRINTERS	CALL
NEWGEN PRINTERS	CALL

## PERFORMAS

630	8/250CD	1777
6115	8/350CD	2347

## QUADRAS

630	8/250	1247
630	12/250CD	1395
950	16/700	3445
950	24/1000	3945

## POWER MACS

	8/0	8/500	16/700	24/1000	40/2.0GB	72/2.4GB	136/4.0GB
6100/60	1195	1395	1775	2275	2995	3895	—
6100/66dos	—	—	2450	3195	3995	4995	—
6100/66	1575	1775	1995	2575	3395	4295	—
7100/80	2495	2650	2995	3475	4195	4995	7450
7100/80AV	2775	2850	3295	3895	4495	5495	7775
8100/100	2995	3225	3650	4195	4950	5775	8150
8100/100AV	3295	3495	3895	4295	5095	5995	8495
8100/110	4395	4650	4850	5595	6350	6995	9550

• APPLE CD 300 I PLUS ADD \$285 • 1 MB V RAM ADD \$75 • 2 MB V RAM ADD \$150

PRICES ARE C.O.D. AND ARE SUBJECT TO CHANGE WITHOUT NOTICE • NEXT DAY AIR AVAILABLE • VISA MASTERCARD AMEX

## SCANNERS

AGFA STUDIO SCAN II	867
AGFA ARCUS PLUS	2575
AGFA HORIZON	16700
PIXEL CRAFT 4000	2125
PIXEL CRAFT 8000	9995
SCANMAKER III	2575
SCANMAKER II HR	1075
SCANMAKER II SP	825
SCANMAKER II SPX	975
EPSON 1200 PR. MAC	1295

## PORTABLE PRINTERS

CITIZEN NOTEBOOK PRINTER II	
WITH COLOR KIT	249
HP 320 W/SHEET	322
APPLE PORT. STYLEWTR	311

## MONITORS

FULL PAGE	339	15" MULTI	487
17" MULTI	977	20" MULTI	1947
<b>SONY / NEC</b>		<b>RASTER OPS</b>	
15 SF	467	17"	875
17 SF	899	20" TRINI	1695
20 SE	1885	21" GREY	675
XE 15	555	17 T	797
XE 17	967	17" PRECI	967
XE 21	1995	20 E INTELLI	1875

## PINNACLE MICRO

OPTICAL TAHOE 230	847
OPTICAL SIERRA 1.3	2377
RECORD. RCD 1000	1777

• WE SPECIALIZE IN CUSTOM MADE CONFIGURATIONS • SINCE 1988 • BUSINESS LEASING AVAILABLE •

CIRCLE 495 ON READER SERVICE CARD



# SYSTEMS & PERIPHERALS



Experience the CREATIVE FREEDOM of Non-Linear Digital Video  
(Fax) 714-375-6397 (Voice) 714-375-6390

## DIGITAL VIDEO/PUBLISHING WORKSTATION SPECIALISTS

TRUE BROADCAST QUALITY • HIGH-8 • S-VHS • BETACAM

### MACINTOSH SYSTEMS

8100/ 110 16/25/CD	5.775	Quadra 950 8/0	2.750
8100/ 100 8/700	3.350	Quadra 950 16/1G	3.555
8100/ 100AV 16/16/CD	4.195	Server 9150 8/500/CD	6.575
8100/80 16/4G/CD	5.295	Server 8150 16/16/CD/Ashare	6.875
8100/ 8/500	2.750	Performa 475 4/250	785
8100/ 8/1G	3.150	Performa 630 8/250/CD	1.352
7100/ 80 8/500	2.595	Performa 475 Bundle	1.120
7100/ 80 16/4G	5.095	PowerBook 520c 4/160/modem	2.995
7100/ 80AV/ 16/700	3.295	PowerBook 540c 4/160	2.585
6100/ 66 8/350	1.695	Apple CD Rom External	325
6100/ 66 16/350/CD	2.395	Quadra 650/840AV 8/230	Call

### EDITING SYSTEMS

Media 100	CALL
Radius VideoVision Studio	2.875
RasterOps MoviePackPro	2.875
Radius Telecast	CALL

### SOFTWARE BLOW OUT!!!!!!

Adobe PhotoShop 3.0.1	450
PageMaker 5.0	450
Illustrator 5.5	295
Microsoft Office	495

### SUPERMAC

Thunder II GX 1600	1.450
Thunder II GX 1360	1.250
Thunder IV GX 1600	2.905
Thunder 24	575

### MONITORS / HARD DRIVES

Radius Intellicolor 20e	1.025
Apple 17" / 15" Monitor	850/425
1G IBM SCSI-II 10ms	395
4G Seagate 8ms	1.765

### PRINTERS

Kodak ColorEase Dye-Sub	5.450
GCC 600 11x17 (20 in Stock)	3.450
LaserMaster PressMate 1800	CALL
HP LJ 4MV 11" x 17"	3.250

### SCANNERS

AGFA StudioScan	765
Microtek ScanMaker III	2.499
UMAX UC 1260 Pro	1.095
PixelCraft ProImager 8000	CALL

## COMPLETE MEDIA 100 WORKSTATION \$19,995

Prices subject to change without prior notice; reflect a cash price only.  
Se Habla Español Llamenos Para Consultacion  
CIRCLE 405 ON READER SERVICE CARD

1.2 GIG EXT 9 MS \$549!

THE WORLD'S SMALLEST

\*Q hard drives external in our micro case @\*

Diplomat 40 Quantum	20ms	\$991
Diplomat 85 Quantum	17ms	\$139
Diplomat 170 Quantum	15ms	\$1691
Diplomat 270 Quantum	12ms	\$199
Diplomat 365 Quantum	12ms	\$249
Diplomat 540 Quantum	11ms	\$2891
Diplomat 730 Quantum	12ms	\$349
Diplomat 1060 Conner	9ms	\$579
Diplomat 2105 Conner	8ms	\$9991

\*Q SyQuest external include cartridges @\*

Ambassador SQ270	44 too	\$329
Ambassador SQ280	3.5"	\$4791

\*Q Hard drive external in our ZFP case @\*

Ambassador ST31200	9MS	\$5691
Ambassador Fujitomo	9MS	\$5491
Ambassador 4.1g Conner	8ms	\$17991

\*Q CD-ROM's external w/SCSI Jacks @\*

Ambassador Sanyo 4x speed 195ml	\$2991
Ambassador NEC 2x speed	\$1791

\*Q PowerBook 2.8" drives internal @\*

Quantum 250mb low power 15ms	\$2591	
Quantum 520mb wow!	15ms	\$459

INTERNATIONAL SALES 619-441-6992 WE MANUFACTURE & DESIGN OUR CASES IN U.S.  
CIRCLE 476 ON READER SERVICE CARD

UNITED COMPUTER EXCHANGE

"A Global Network for buyers and sellers of used Macintosh equipment"

SELLERS' No Listing Fee/  
Fast Turn Around!  
BUYERS' Quality Control/  
Large Selection!

800-755-3033

Get the latest "Used Mac Price Index" available on: 24-hour Faxline (404) 955-0569;  
United BBS (404) 612-0117

CIRCLE 478 ON READER SERVICE CARD

Macworld SHOPPER

HOT SHOPPER  
PRODUCT CATEGORIES  
HELP BUYERS  
FIND THE PRODUCTS  
THEY NEED FAST.

SOMETHING FOR NOTHING

Free Catalog Of Used Macintosh Computers and Peripherals

While Mac outfits come and go, we just keep on doing what we do best. We've been refurbishing and selling used computers for 12 years. Your satisfaction is guaranteed with us!

1-800-SUN-0999  
1-800-786-0999

Call Anytime!

PO Box 4059  
Logan, UT 84323-4059  
International (801) 755-3360  
Fax: (801) 755-3311

CIRCLE 424 ON READER SERVICE CARD

MacUSA Since 1983

800-809-0880

Voice: 818-704-8923  
Fax: 818-704-9858

Quadra

605/630/950	Call
-------------	------

Power Mac

6100 8/250	Call
7100 16/500	Call

PowerBook

150/520/520C	Call
540/540C	Call

Printers

Hewlett Packard	Apple
4M Plus	14"/14" AV
4M	15"/17"

Monitors

14"/14" AV	\$375/620
15"/17"	\$475/950

Scanners

H.P. IIcx	\$920
Apple Color II	\$860

Software

MICROSOFT OFFICE OR ALDUS Pagemaker for \$250 WITH ANY PURCHASE.  
DEALER & WHOLESALE INQUIRIES WELCOME!  
WE ALSO SELL:  
COMPAQ, IBM, TOSHIBA

PRICES REFLECT CASH DISCOUNT AND ARE SUBJECT TO CHANGE

We'll Beat Any Price!

Visa, AmEx, & MasterCard Welcome.

WE ONLY SELL NEW PRODUCTS.

No Sales Tax for Customers outside of California!  
7210 Jordan Ave. D55 Canoga Park,  
California 91303, U.S.A.

CIRCLE 448 ON READER SERVICE CARD

COMPAQ Hewlett Packard radius Microsoft Fujitsu IBM SUPERMAC RELISYS XANTE

POWERMAC

6100 8/160	CALL
6100 8/250	\$1650
6100 8/250 CD	CALL
6100AV 8/250 CD	CALL
7100 8/250	\$2499
7100 8/500 CD	CALL
7100AV/8/500 CD	CALL
8100 8/250 CD	CALL
8100AV/16/500 CD	CALL

PRINTERS

LWRITER 360	\$1409
LWRITER 630	\$1099
LWRITER/1600PS	\$2275
HP 4M	\$1950
HP 4MP	\$1395
1200 CPS	CALL
PXL300PS	CALL
STYLEWRITER	\$289
STYLEWRITER 2400	\$499

GCC

ELITE 600	\$1325
ELITE 600ET	\$1699
SELECTPRESS 600	CALL
SELECTPRESS 1200	CALL

RADIUS/NEC

INTELCOLOR 20E	CALL
PRECISION 17	CALL
PC 24X	\$1365
PC24XP	CALL

POWERBOOK

150 4/120	\$1395
150 4/250	\$1829
520 4/120	\$2099
520C 4/160	CALL
540 4/240	CALL
540 12/240 m	CALL
540C 4/240	CALL
540C 12/250m	CALL

SCANNERS

UMAX 630LE	\$629
UMAX 1200 LE	\$1129
SCANMAKER II SP	\$829
SCANMAKER II G	\$499
MICROTEK 95T	CALL
HP SCANJET IIX	\$995
HP SCANJET II	\$499
EPSON ES	\$1299
RELISYS	CALL

APPLE INTERNAL SUPERDRIVE \$149

COMPUTER REVELATIONS

PRICES REPRESENT CASH DISCOUNT

CALL US ABOUT  
NEW 8100 / 110  
NEW 8100 / 100  
NEW 7100 / 80  
NEW 6100 / 66  
POWERMACS

NEW & USED  
BOUGHT & SOLD  
Ask about our  
EXTENDED  
WARRANTY

Computer Revelations Inc.  
1 800 275-9924  
in NY 516 737-0800  
ALL MACINTOSH, & PCs,  
Sales, Leasing, Service & Support  
331E DANTE COURT HOLBROOK NY 11741 FAX: 516 737-9923

CIRCLE 474 ON READER SERVICE CARD



**M.P.D.**

1-800-993-5673

Tel (305) 477-4441 Fax 477-4602

**New Power Macs**

6100/66 8/350	1,621.
6100/66 8/350 CD	1,808.
7100/80 8/500	2,583.
7100/80 8/700 CD	2,886.
7100/80AV 16/700 CD	3,412.
8100/100 8/700	3,232.
8100/100 16/1000 CD	3,984.
8100/100AV 16/1000 CD	4,176.
8100/110 16/2000 CD	5,677.

**Power Macs**

6100/60 8/250	1,202.
6100/60 8/250 CD	1,389.
7100/66 8/500	2,060.
7100/66 8/500 CD	2,242.
7100/66 AV 16/500 CD	2,754.
8100/80 8/500	2,673.
8100/80 16/500 CD	3,197.
8100/80 AV 16/500 CD	3,380.

**Performas**

Performa 475 4/250 (CPU)	695.
Performa 630 8/250 CD (CPU)	1,352.
Performa 475 4/250 Bundle w/ Color+, Kbd & Modem	1,099.
Performa 630 8/250 CD Bundle w/ Color+, Kbd & Modem	1,825.

Receive WordPerfect Bundled FREE with any PowerMacintosh while supplies last.  
(\* Price after \$150. mail-in rebate from HP. Please call for memory, Hard Drives & Custom Configurations.  
Prices reflect cash discount. All prices and availability subject to change. All major credit cards accepted.  
See full ad special. In-Store orders welcome. FREE 2nd day shipping for orders over \$2,500. Please call for details.

**Powerbooks**

Powerbook 150 4/120	1,335.
Powerbook 520 4/160	1,745.
Powerbook 520C 4/160	2,250.
Powerbook 520C 12/320 Mdm	2,970.
Powerbook 540 4/240	2,815.
Powerbook 540C 4/320	3,465.
Powerbook 540C 12/500 Mdm	4,095.
Powerbook Duo 280C 4/320	3,284.

**Printers**

Color Stylewriter Pro	561.
Stylewriter II	266.
Color Stylewriter 2400	468.
Personal LW 320	845.
Personal LW 360	1,409.
Laserwriter 16/600	2,122.
HP Deskwriter 560C	465.

**Monitors**

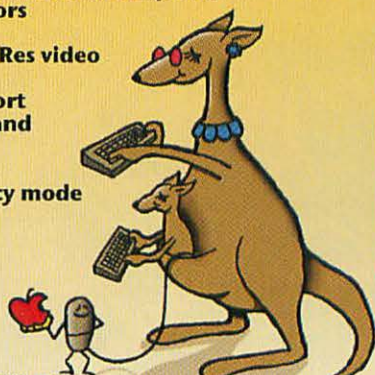
Apple 14" Color+ Display	283.
Apple 15" Multiple Scan	440.
Apple 17" Multiple Scan	895.
Apple 20" Multiple scan	1,878.
Sony 15" MultiScan	441.
Sony 17" MultiScan 17sf	870.
Sony 20" MultiScan 20se	1,910.

**Peripherals**

Apple ColorOne Scanner	751.
HP Scanjet IIcx Mac (*)	790.
External CD3000+ BONUS CDs	295.

**Add a second keyboard, monitor  
and mouse up to 250 feet away  
from your Macintosh!**

- Compatible with most Macintosh computers with detachable monitors
- Supports Macintosh Hi-Res video
- Macintosh mouse support standard at both local and remote workstations
- Switch selectable privacy mode
- No software required for operation



**MAC COMPANION™**

Cybox Corporation  
4912 Research Drive Huntsville AL 35805 USA  
(205) 430-4000 (205) 430-4030 fax



Macintosh and Mac are trademarks of Apple Computer, Inc. Cybox and Companion are trademarks of Cybox Corporation.

Dealer Program Available

Made in USA

CIRCLE 433 ON READER SERVICE CARD

**KING OF THE JUNGLE!**

**MAC MEMORY - 30 PIN**

1x8 - 100	\$29
1x8 - 80	\$32
2x8 - 80	\$73
4x8 - 80	\$129
8x8 - 80	\$269
16x8 - 80	\$599

**PC MEMORY - 30 PIN**

1x9 - 70 3 chip	\$39
1x9 - 70 9 chip	\$45
4x9 - 70	\$135
16x9 - 70	\$649

**PC MEMORY - 72 PIN**

1x36 - 70	\$149
2x36 - 70	\$295
4x36 - 70	\$549

Also AST, Compaq, Epson, HP, IBM, TI, Toshiba and all laser printer memory upgrades.

**MAC MEMORY - 72 PIN**

1x32 - 70/60	\$144/149
2x32 - 70/60	\$289/299
4x32 - 70/60	\$535/545
8x32 - 70/60	\$1050/1109

**POWER PC MEMORY**

8meg Kit	\$298
16meg Kit	\$598
32meg Kit	\$1070
64meg Kit	\$2099

**VIDEO VRAM**

256 k VRAM	\$22
512 k VRAM	\$39

Also VRAM for Power PC's

**SYQUEST**

Memory Direct 88C	\$359 (Ext)
lomage 44	\$58
lomage 88	\$84

**POWERBOOK MEMORY**

520, 520c, 540, 540c	
4meg	\$209
8meg	\$359
16meg	\$735
32meg	\$1489
140 160 165c Duos	
170 180 180c	
4mb	159 169 165 195
6mb	219 239 239 256
8mb	299 309 329
10mb	362 369
12mb	529
14mb	699
20mb	949

**EXPERIENCE THE BEST  
SERVICE IN THE INDUSTRY**

**WE WILL NOT BE  
UNDERSOLD!!**

Same Day Shipping  
Educational, Corporate and Government  
P.O.'s Welcome

We accept AMEX, VISA, MASTERCARD & DISCOVER  
Lifetime Warranty on all memory products  
Prices subject to change without prior notice.

800-989-6348

714-848-5958

**MEMORY DIRECT!**

Terms & Conditions: RMA numbers are required for all returns. All unopened, unused or non-destructive returns will be subject to a 16% restocking charge.

**WE BUY USED MEMORY**

**GREEN MEMORY 714-842-1227**

18685 MAIN STREET #607, HUNTINGTON BEACH, CA 92648

CIRCLE 516 ON READER SERVICE CARD

**Power Macintosh**  
Your best deal!

Power Mac 6100 8/350	1,549
Power Mac 6100 8/350/CD	1,779
Power Mac 7100 8/500	1,849
Power Mac 7100AV 8/500/CD	2,449
Power Mac 8100 8/700	3,099
Power Mac 8100AV 16/1000/CD	3,999
Power Mac 8100 16/2000/CD	5,399
Performa 475 8/250	699
Powerbook 540C 4/320	3,099

<b>Apple PRINTERS</b>	<b>Apple MONITORS</b>
Stylewriter II	14" Plus
FW 820	14" AV
PLW 360	15" MULTISCAN
LW PRO 16/600	17" MULTISCAN
LW PRO 630	20" MULTISCAN

1 800 404-9976

**MACNET**

CIRCLE 543 ON READER SERVICE CARD

**PHONET** ONLY \$7.99  
Compatible

New LCII	\$450
LaserWriter Pro 630	\$1,599
14" .29 Color Monitor	\$199
Powerbooks	Call

**Computer Marketing Corporation**

**Corporate Trade Center**  
We Buy Macs! • \$100,000 available  
1-800-416-6338

CIRCLE 413 ON READER SERVICE CARD

**MEMORY WE BUY USED MEMORY**



**TRADERS**

1117 N. 19th St., Ste. 1201  
Arlington, VA 22209  
Ph: 703-243-4006  
FAX: 703-522-6626

**NO HIDDEN CHARGES!**  
**VISA/MC - NO EXTRA CHARGE**  
**PRICES INCLUDE SHIPPING**  
**LIFETIME WARRANTY**

**WORKING OR BROKEN**  
**ANY QUANTITY**  
**ANY SPEED**

256K
512K
1MB
2MB
4MB
8MB
16MB
32MB
VRAM
TIFF SIMMS
PB 2MB-10MB

**800-315-7807 WE SELL NEW MEMORY**

CIRCLE 409 ON READER SERVICE CARD



# PERIPHERAL

PERIPHERAL OUTLET, Inc.

## 800/256-6581

### SAVE MONEY!

Peripheral Outlet will buy your old memory at great prices, even if you didn't buy it from us! Call for details.

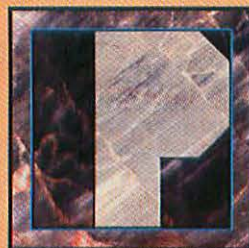
### 68040 Accelerators for 610s

The CentrisBooster and QuadraBooster take your Centris/Quadra 610 to supersonic speeds! You can double the clock speed of your Centris 610 by installing our 40MHz 68040 accelerator, or you can make your Quadra 610 fly with the 50MHz version. The Centris version is also available in a \$245.00 configuration which includes Motorola's 'mathless' 68LC040 processor.

68040 40MHz Accelerator for Centris 610	\$395.00
68040 50MHz Accelerator for Quadra 610	\$595.00

### 68040 Processor w/FPU \$279

For the Centris and Quadra 605, 610, 650 and 660AV, and the Performa 475/476 and LC 475.	
33MHz for Quadra 650 and LC 575	\$399.00
40MHz	\$699.00
Heat Sink	\$19.00



### PERIPHERAL OUTLET, Inc.

327 East 14th, PO Box 2329 • Ada, Oklahoma 74820  
405/332-6581 fax 405/436-2245 AppleLink: PERIPHERAL  
HOURS: Monday-Thursday 6AM-7PM CST, Friday 6AM-6PM

INTERNATIONAL TOLL FREE NUMBERS FOR DEALERS ONLY:

Japan 0066 33800 120, UK 0800 962 058, Sweden 020 797 857  
Norway 800 12698, France 0590 1997, Australia 1 800 122 764  
Germany 0130 818 983, Netherlands 0602 26638

We accept Visa/MC/Amex/Discover, and COD Cashiers check upon approval. Educational, Government, and Fortune 500 P/Os accepted upon approval.

**Call us last! We will try to beat all reasonable competitor's prices!**

### 72 Pin Memory for the new Macs

	80ns	70ns	60ns
4 Megabyte			
8 Megabyte			
16 MB-Non Composite			
32 MB-Non Composite			

Prices Changing —  
Call for Best Prices!

### Video RAM

4 Bit to 8 Bit Upgrade (Mac II/Ix cards)	24.00
256K Quadra 700/900, Performa 46X VRAM	13.00
256K Quadras, LC 520 VRAM	15.00
256K Centris, LC III, Performas VRAM	15.00
512K VRAM for LC, LCII, IIfx, IIfx, DuoDock, Performas	35.00

### PowerBook 100-series Memory

	100	140/170	160/180	165c/180c	Duos
2 MB	79.00	79.00	---	---	---
4 MB	125.00	109.00	109.00	109.00	189.00
6 MB	179.00	149.00	149.00	149.00	---
8 MB	---	---	215.00	215.00	349.00
10 MB	---	---	269.00	269.00	---
12/14 MB	---	---	---	---	525/599
20/28 MB	---	---	---	---	875/1229

### PowerBook 500-series Memory

4 Megabyte upgrade	185.00
8 Megabyte upgrade	329.00
16 Megabyte upgrade	659.00
32 Megabyte upgrade	1375.00

### Cache Cards, Etc.

256K Level 2 Cache Card for PowerMacs	149.00
128K Cache Card for Quadras	from 125.00
128K Cache Card for LCIII & Performa 450	129.00
IIfx/IIsi 64K Cache Card	125.00/159.00
IIsi 2-slot Card and 68882	119.00
Slot-Free Cache Card for LC 475	195.00
Slot-Free Cache for 660AV, 700, 900, 950	245.00

Due to volatility in the market all prices and availability are subject to change without notice.

### Standard 30 pin SIMMs

1 Megabyte	from 35.00
2 Megabyte	74.00
4 Megabyte	125.00
8 Megabyte	289.00
16 Megabyte	525.00

### 68882 FPU Boards

25 MHz for Macintosh LC/LCII	55.00
20 MHz w/2 slots for Mac IIsi	119.00
25 MHz for Mac Classic II	55.00

### Newton Upgrade Products

512K Static RAM Storage Card	115.00
1 Megabyte Static RAM Storage Card	165.00
2 Megabyte Static RAM Storage Card	279.00
2 Megabyte Flash Storage Card	235.00
4 Megabyte Flash Storage Card	399.00
8 Megabyte Flash Storage Card	525.00
16 Megabyte Flash Storage Card	895.00

### Math Coprocessors

68882 16 MHz FPU	39.00
68882 20 MHz FPU	45.00
68882 25 MHz FPU	49.00
68882 33 MHz FPU	59.00
68882 50 MHz FPU	99.00
68881 16 MHz FPU	45.00

### Miscellaneous

LaserWriter 320 2, 4, 6 MB upgrades	CALL
LaserWriter Pro 810 4MB/8 MB upgrades	275/499
T.I. MicroLaser 1 MB	49.00
Mac Classic 1 MB Board	75.00
68851 16MHz PMMU	89.00
if requested, MODE 32 software included free w/PMMU	
Mac Portable 3 MB Card	369.00
Mac Portable 4 MB Card	399.00
Mac Portable 5 MB Card	449.00

### 50 MHz Accelerator \$445

Speed increases of up to 400% with the DiIMOCache 50MHz 68030 Accelerator. Awarded 4 1/2 Mice in MacUser's April 93 Accelerator review, the DiIMO outperformed not only DayStar's PowerCache 50MHz but also most of the 68040 25MHz accelerators. The DiIMOCache 50MHz runs on the LC, LCII, LCIII, II, IIfx, IIfx, IIsi, SE30, and the Performa 600 and Performa 400 series. Call for adapter prices.  
DiIMOCache 50MHz Accelerator...\$445.00  
DiIMOCache 50MHz w/FPU...\$519.00



### TOLL FREE TECH SUPPORT

LIFETIME WARRANTY on all memory products  
Order by 6:30PM CST for same day shipping\*  
Overnight delivery from \$8.00 \*some restrictions apply



CIRCLE 454 ON READER SERVICE CARD

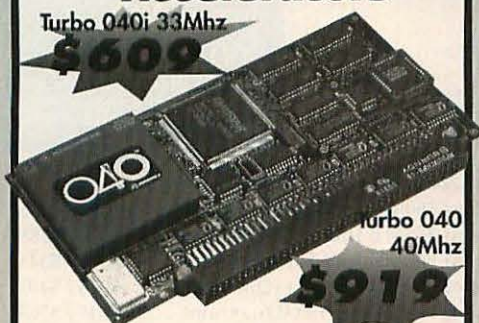


## ENERGIZE YOUR MAC WITH MAC Xtra!

### Accelerators

Turbo 040i 33Mhz

**\$609**



Turbo 040  
40Mhz

**\$919**

Daystar Turbo 040 33Mhz w/Cache ...	\$795
Daystar Turbo 040 40Mhz w/Cache ...	\$919
Daystar Turbo 040 128kCache ...	\$165
Daystar 030 33 w/FPU ...	\$342
Daystar 030 40 w/FPU ...	\$359
Daystar 030 50 w/FPU ...	\$519
Daystar PowerPRO 601 66Mhz ...	\$1,315
Daystar PowerPRO 601 80Mhz ...	\$1,899

### Memory For Your Macintosh!

1x8x80 .....	\$36
2x8x80 .....	\$77
4x8x80 .....	\$129
4x8x80 II/III .....	\$145
16x8x80 (Low Profile) .....	\$589
1x8x80FX .....	\$36
4x8x80FX .....	\$136
16x8x80FX .....	\$560

**\$129**  
4x8x80

**\$155**  
4MB 72pin 70ns

### 32 Bit /72 Pin Quadra, Centris, Power Mac

4MB 72Pin (70NS/ 60NS) ....	\$155/\$157
8MB 72Pin (70NS/ 60NS) ....	\$292/\$309
16MB 72Pin (60NS) .....	\$479
32MB 72Pin (60NS) .....	\$989



PB520-540C 4MB

### PowerBook

PB 520-540C 4MB .....	\$170
PB 520-540C 8MB .....	\$324
PB 520-540C 16MB/32MB *633/1,339	
PB 140-170 4MB/6MB .....	\$94/\$142
PB 160-180 4MB/6MB .....	\$95/\$135
PB 160-180 8MB/10MB .....	\$202/\$275
PB 165C-180C 4MB/6MB .....	\$102/\$181
PB 165C-180C 8MB/10MB .....	\$219/\$280
PB520 4MB/8MB .....	\$170/\$325
PB520 12MB/14MB .....	\$482/\$560
PB520 20MB/28MB .....	\$807/\$1,275

### Modems

US Robotics  
28.8 V.34

**\$265**

#### Prometheus

PowerBook 14.4 Int. ....	\$244
PowerBook Ultima Home Office ..	\$279
Home Office 14.4E Ext. ....	\$210

#### Zoom

Zoom FXV 2400/9600 S/R Fax ....	\$116
Zoom VFX 14.4 v.32bis S/R Fax ...	\$169

#### Hayes

Accura 144+Fax 14.4 Mac .....	\$164
Optima 144+Fax 14.4 Mac .....	\$403
Optima 144+Fax 14.4 Pocket Mac ..	\$303

#### US Robotics

Sportster 28.8 Mac & Fax .....	\$232
Sportster 14.4 Mac & Fax .....	\$152

#### Supra

Supra 28.8 V.F.C. ....	\$238
Supra 14.4 LC .....	\$139

### Genuine SyQuest

**\$62**  
270MB

44MB 1-4/5-9/10+ .....	\$59/\$58/\$57
44MB Pre-Formatted .....	\$61
88MB 1-4/5-9/10+ .....	\$67/\$66/\$65
88MB Pre-Formatted .....	\$69
200MB 1-9/10+ .....	\$79/\$77
105MB 1-9/10+ .....	\$55/\$54
270MB 1-9/10+ .....	\$62/\$60

### Networking

Dayna	
DaynaPort Pocket SCSILink-T ....	\$231
DaynaPort SCSILink .....	\$247
DaynaPort SCSILink PowerBookT ..	\$266
DaynaPort TRX (Friendly Net) .....	\$54
DaynaPort E/II-T Nubus .....	\$104
DaynaPort E/LC-T Mac LC Card ....	\$88
DaynaPort E/SE-T Mac SE Card .....	\$143
DaynaPort E/Si30-T IISI & SE/30 ..	\$143
DaynaStar Mini Hub 5 10Base T .....	\$151
DaynaStar Mini Hub 10Base T .....	\$193
Farallon	
EtherWave Nubus Card .....	\$179
EtherWave LC Card .....	\$179
EtherWave Mac PowerBook .....	\$293
EtherWave Printer Adapter .....	\$278
EtherMac LC-C .....	\$170
EtherMac LC-10T .....	\$84
PhoneNet Connector .....	\$28

### Xtra Media

Verbatim	
Verbatim 128MB Optical .....	\$30
Verbatim 650MB Optical .....	\$79
Verbatim 1.3GB Optical .....	\$105
Verbatim RCD 74Min .....	\$13.99
Komag	
Komag 128MB Optical .....	\$28
Komag 600MB Optical .....	\$79
Komag 1.3MB Optical .....	\$99
TDK	
TDK 128MB Optical .....	\$28
TDK RCD 74Min .....	\$13.99

### Xtras Xtras Xtras

PowerPC Cache 256K .....	\$185
FPU LC/LCII/LCIII .....	\$49/\$48
FPU Classic II .....	\$55
FPU Color Classic .....	\$48
FPU Duo Dock/Performa 600 .....	\$59
FPU/CPU 040 25Mhz .....	\$299
VRAM 256K/ 512K .....	\$20/\$38

### Video Cards

Radius	
Precision Color 8XJ Nubus .....	\$461
Precision Color PRO 24XK Nubus ..	\$768
Precision Color PRO 24XP Nubus ..	\$461
PhotoBooster for Rocket .....	\$615
PhotoBooster 68040-66 .....	\$768
SuperMac	
Spectrum/24 Series V Nubus .....	\$850
Spectrum/8.24 PDQ Nubus .....	\$510
Spectrum/8 Series III Nubus .....	\$382
Video Spigot Nubus 24bit-DAC .....	\$382
Video Spigot Mac LC 24bit-DAC ..	\$243
Thunder II Light Nubus 1152x870x1,701	

### Drives

Xtra Drives	
SyQuest 44/88MB w/Cartr. ....	\$289/\$399
SyQuest 200MB w/Cartridge .....	\$539
SyQuest 105/270MB w/Cartr. ....	\$379/\$539
128MB Optical 30ms .....	\$849
230MB Optical 30ms .....	\$929
CD-Rom Photo CD 2x .....	\$199
10GB DDS/2 Dat .....	\$1,199
270MB Int./270MB Ext. ....	\$219/\$279
340MB Int./340MB Ext. ....	\$279/\$339
540MB Int./540MB Ext. ....	\$309/\$369
Powerbook 256MB/340 Int. ....	\$389/\$449

### Accessories

Wacom	
6x8 ARTZ ADB UD-Series Tablet ..	\$299
12x12 UD-Series Tablet .....	\$498
12x18 UD-Series Tablet .....	\$761
18x25 SD-Series Standard .....	\$2,561
Cordless Non-Pressure Sens. Sty. ..	\$52
4 Button Cursor for UD 12x12 .....	\$104

### Monitors

Radius	
Precision Color 17" Multiscan ...	\$1,075
Precision Color 21" .....	\$2,110
Full Page Display 15" Mono .....	\$496
NEC	
5FGE 17" Multiscan .28 .....	\$1,036
3FGE 15" Multiscan .28 .....	\$594
4FGE 15" Multiscan .28 .....	\$652
SuperMac	
SuperMatch 17T Professional ..	\$1,009
SuperMatch 17XL 17" .....	\$1,020
SuperMatch High Res 20" .....	\$2,763
SuperMatch 21T XL 21" 2 Page ..	\$2,257



MAC Xtra • 1075 Bellevue Way NE, Suite 114  
Bellevue, WA 98004 • Phone: (206) 746-3803  
Fax your order 24 Hours a day! (206) 746-5324

Overnight Delivery - \$7 and up/ UPS Ground - \$6 and up

**1-800-553-4230**

• MasterCard, VISA & Discover— NO Surcharge  
• Prices subject to change  
• Returns subject to approval and restocking fee  
7:00 AM to 6:00 PM M-F - 9:00 AM to 4:00 PM Sat - PST



YOUR HABITAT FOR THE BEST PRODUCTS AT COMPETITIVE PRICES . . .



## ACCELERATORS



**\$649**

**POWERCARD™ 601**  
THE ONLY POWERPC  
UPGRADE FOR YOUR  
QUADRA 630 & 605,  
LC & PERFORMA 630,  
470, 570. Item# 3729

## ACCELERATORS

40MHz Turbo 040 with 128k cache . . . . . \$795  
PowerPro 601 66MHz . . . . . \$1315  
PowerPro 601 80MHz . . . . . \$1935

## DRIVES

### RUMI SYQUEST DRIVES

Rumi 88MB SyQuest (W/ FREE Cartridge) . . . . . \$379  
Rumi 200MB SyQuest (W/ FREE Cartridge) . . . . . \$539  
Rumi 270MB SyQuest (W/ FREE Cartridge) . . . . . \$539  
Rumi 105MB SyQuest (W/ FREE Cartridge) . . . . . \$379

### RUMI CD-ROM DRIVE

Doublespeed, Multisession  
Photo CD, NEC Mechanism.

Rumi 510 3x Triple Speed . . . \$499  
CD-ROM Drive

### OPTICAL DRIVES

Rumi 230 Optical Drive . . . \$679  
Rumi 230 Optical Bundle . . . \$839 w/ 5 FREE  
PMO Tahoe 230 . . . \$979 Verbatim  
PMO Sierra 1.3 . . . \$2339 Cartridges  
PMO Sierra 2.6 . . . \$5519  
PMO RCD 1000 . . . \$1899

### POWERBOOK DRIVES

Internal 340MB . . . . . \$389  
Internal 510MB . . . . . \$489

**\$379**

**\$185**

**\$399**

**CD-ROM BUNDLE**  
Includes RUMI CD-ROM Drive, Sony  
Speakers and 4 CD Titles: •World  
Atlas •Myst •Lunatic •Where in the  
World is Carmen Delux

### RUMI HARD DRIVES

Rumi 160MB Int / Ext (Quantum) . . . \$189 / \$255  
Rumi 365MB Int / Ext (Quantum) . . . \$229 / \$285  
Rumi 540MB Int / Ext (Quantum) . . . \$279 / \$345  
Rumi 730MB Int / Ext (Quantum) . . . \$345 / \$405  
Rumi 1.0GB Int / Ext (Quantum) . . . \$645 / \$705  
Rumi 2.1GB Int / Ext (Quantum) . . . \$1085 / \$1145



**\$829**

### SUPERMAC SPIGOTPOWER AV

For your Macintosh Quadra™ AV or Power Macintosh™  
AV computer, SpigotPower AV captures full-screen at up  
to 30 frames/60 fields per second with full 24-bit color,  
delivering unmatched image quality for CD-ROM author-  
ing and multimedia presentations. Item# DV 1630

You Can Trust *Newer* Call: 1 800-840-2212

## ACCELERATORS

### POWER MAC CACHE

Level 2 cache raises the 6100/7100 performance,  
in some cases getting up to 48% more speed.  
#NPM 256K CACHE . . . . . \$179  
#NPM 512K CACHE . . . . . \$415  
#NPM 1MB CACHE . . . . . \$805

### MAC CLIP

**40% MORE POWER!**

#N7MC040-QC #N7MC040-SC  
Quadra 840/840AV Centris/Quadra 610/650

### POWER CLIP

For Power Macintosh  
6100/60, 6100/60AV,  
7100/66 and 7100/66AV.  
#N7MC601

**\$149**

## MEMORY

POWER MAC, CENTRIS, QUADRA, LC  
III, PERFORMA

### 32-BIT MEMORY

4MB-70ns/4MB-60ns . . . \$185/\$189  
8MB-70ns/8MB-60ns . . . \$345/\$350  
16MB-70/60ns . . . \$559/\$569  
32MB-60ns . . . \$1,149  
16MB-70ns (LC III) . . . \$599  
32MB-70ns (LC III) . . . \$1,189

### 8-BIT MEMORY

1x8x70 . . . \$44  
2x8x70 . . . \$84  
4x8x70 . . . \$150  
4x8x70 (IIX) . . . \$169  
4x8x70 (IIIX) . . . \$170  
8x8x70 . . . \$299  
8x8x70 (IIX) . . . \$349  
16x8x70 . . . \$529  
16x8x70 (IIX) . . . \$659  
16x8x70 (Radius Rocket) . . . \$549

## POWERBOOK

### POWERBOOK MEMORY

PB100-4/6 . . . \$220/\$309  
PB140/145/170-2/4/6 . . . \$80/\$161/\$203  
PB160/165/80-4/6/8/10 . . . \$129/\$185/\$239/\$349  
PB165c/180c-4/6/8/10 . . . \$126/\$185/\$269/\$349  
PB520-540c-4/6/8/10/32 . . . \$219/\$399/\$721/\$1,185  
PB210-280c-8/12/20/28 . . . \$411/\$585/\$855/\$1,259  
Base Module-4/12 . . . \$219/\$674  
Upgradeable PowerBook DUO modules.

### METEOR+ ACCELERATOR

N7QDP-A Centris 650 . . . . . \$935  
N7QDP-B Quadra/Centris 610 . . . \$935

N7QDP-C Quadra 700 . . . \$935  
N7QDP-D Quadra 900 . . . \$935  
N7QDP-F Quadra 950 . . . \$935

### SCSI MICRODOCK

SCSI MicroDock . . . \$141  
Docking station for PowerBook Duos, allows SCSI  
devices to be attached.  
Color MicroDock . . . \$249  
Docking station for PowerBook Duos to  
add color monitor, keyboard  
and speakers.  
Ethernet MicroDock . . . \$179  
PowerBook Duos can quickly  
and easily be attached  
to networks.

**\$299**  
**Special Power Mac Bundle!**  
•Power Mac Clip • 256k cache  
Item# N7MC601-256K



**THE LLB  
COMPANY, INC.**

Call For Our  
FREE Catalog  
1 800-848-8967

Fax  
Your Order To:  
206-746-5168

Electronic orders:  
Compuserve @  
73423, 1272

For International  
Call:  
206-746-0229

CIRCLE 563 ON READER SERVICE CARD



FOR ALL YOUR MEMORY & MAC NEEDS CALL: 1 800-848-8967

## POWERBOOK MEMORY

PB140-170-4/6	.....\$99 / \$139
PB160-180-4/6/8/10	.....\$109 / \$149 / \$219 / \$279
PB165C-180C-4/6/8/10	.....\$109 / \$149 / \$219 / \$409
DUO 210 - 280C 4/8/12	.....\$169 / \$329 / \$479
DUO 210 - 280C 14/20/28	.....\$539 / \$795 / \$1199
PB 520 - 540C 4/8/16/32	.....\$179 / \$319 / \$609 / \$1169

## POWERBOOK ACCESSORIES

Charger & Conditioner - PB140-180 / PB5xx	.....\$75 / \$219
Long Life Battery 140-180c	.....\$59
Automobile Adapter 100-180 / DUO / PB5xx	.....\$69
SlimPack 140-180 / Duo	.....\$145 / \$235
Mini AC Adapter 140/180c / Duo	.....\$50
PB 140-180 Twin Traveler Double Battery Charger	.....\$55

We also carry Kensington Security Cables & Carrying Cases.

## MEMORY

We have a Lifetime Warranty on all of our memory products. Prices and availability are subject to change without notice.

## STANDARD 30 PIN MEMORY

1x8x80	.....\$37	4x8x80 (IIIfx)	.....\$145
1x8x70	.....\$39	4x8x70 (IIIfx)	.....\$147
1x8x100	.....\$35	4x8x80 (II,IIIfx)	.....\$139
2x8x80	.....\$79	4x8x70 (II,IIIfx)	.....\$141
2x8x70	.....\$81	8x8x70 (IIIfx)	.....\$349
4x8x80	.....\$130	16x8x70 (Low Profile)	.....\$609
4x8x70	.....\$132	16x8x70 (IIIfx)	.....\$635

## VIDEO RAM / FPU'S ETC...

Video RAM 256K / 512K	.....\$15 / \$35
16MHz LC / Color Classic	.....\$49
16MHz Classic II	.....\$59
25MHz LC III	.....\$49
33MHz Performa 600 / Duo Dock FPU	.....\$55
Centris FPU	.....\$285
Lc 575 FPU	.....\$349

**\$130**

**10% OFF  
V RAM**

When You Buy Memory

## POWERPC, CENTRIS, QUADRA, LC III

4MB-70ns / 4MB-60ns	.....\$157 / \$159
8MB-70ns / 8MB-60ns	.....\$290 / \$305
16MB-60ns non-composite	.....\$462
16MB-70ns non-composite	.....\$457
32MB-60ns	.....\$929

## SCANNERS



**\$889**

## AGFA STUDIOSCAN II SCANNER

400 ppi x 800 ppi and interpolated to 2400 ppi. Includes: Omni Page Direct, Foto Snap, Foto Look, Foto Tune LT and Photoshop LE. Item# AG Studio II



## POLAROID SPRINTSCAN 35 SLIDE SCANNER

Scan 35mm slides up to 2700 dpi - in under a minute! The ideal desktop solution for anyone in need of a high quality slide scanner. Item# PLD619111

**\$1999**

MICROTEK SCANMAKER IIHR	.....\$1,099	UMAX VISTA S6	.....\$799
MICROTEK SCANMAKER IISPX	.....\$919	UMAX 630 / 630L	.....\$769/\$595
MICROTEK SCANMAKER III	.....\$2559	NIKON COOLSCAN	
UMAX POWERLOOK	.....\$3045	LS/10E SLIDE SCANNER	.....\$1349



**\$130**

## MODEMS

### GLOBAL VILLAGE TELEPORT GOLD II™

Item# 137318 TELEPORT BRONZE II™ 24/96/48.	.....\$97
Item# 137323 POWERPORT DUO 2XX MERCURY 19.2.	.....\$329
Item# 137320 POWERPORT 1XX MERCURY 19.2 PB 100-180C.	.....\$329
Item# 137335 POWERPORT 5XX MERCURY/500 SERIES. 19,200 DATA 14,400	.....\$329
Item# 50V34E-MC SUPRA 28.8 V.34	.....\$229
Item# 5014XP SUPRA EXPRESS PLUS 14.4	.....\$99
Item# USR 317146 U.S. ROBOTICS MAC&FAX SPORTSTER® TRUE V.34	.....\$265
Item# USR 388979 US ROBOTICS SPORTSTER 14,400 MAC&FAX	.....\$125



## The Hottest CD-ROM's 1 800-450-4552



Photodisc Starter Kit	.....\$29
Photodisc Signature Series	.....\$249
Screens & Wallpaper	.....\$14
MacroMedia Action!	.....call
MacroMedia Director 4.0	.....call

## Education

Aladdins Activity Center	.....\$39
A World of Animals	.....\$62
Four Footed Friends	.....\$18
The Lion King Animated Storybook	.....\$36
Magic Bear's Masterpieces	.....\$33
Reader Rabbit 2 Deluxe	.....\$44
Sammy's Science House	.....\$38
Stradiwackius	.....\$18
Thinkin' Things	.....\$42

## Special Interest/Reference

American Visions	.....\$49
Berlitz Think & Talk: Spanish	.....\$121
Compton's Interactive Encyclopedia	.....\$78
Cosmology of Kyoto	.....\$68
Encarta '95	.....\$89
Grolier's '95 Multimedia Encyclopedia	.....\$89
JFK Assassination	.....\$39
Palmistry	.....\$44
Street Atlas USA	.....\$76
The Complete Multimedia Bible	.....\$39
The Doctors Book of Home Remedies	.....\$31
World Factbook '95	.....\$18

## Entertainment

7th Guest	.....\$59
11th Hour	.....\$69
AEGIS	.....\$55
Arc of Doom	.....\$39
Doom II	.....\$49
HellCab	.....\$62
JumpRaven	.....\$44
Lunatic	.....\$44
Myst	.....\$49
Prince Interactive	.....\$58
SimTown	.....\$34
Star Trek 25th Anniversary Ed	.....\$45
Stone Keep	.....\$48
The JourneyMan Project Turbo	.....\$49
Under the Killing Moon	.....\$69
Virtual Guitar	.....\$89
Voyeur	.....\$48
Xplora Holiday Deluxe Version	.....\$65

## Graphics/Presentations

Color Digital Photos (7 separate titles)	.....\$19
Corel Photo CD's	.....\$25
Creative Fuel Bundle	.....\$69
PrintShop Deluxe CD Ensemble	.....\$79



## AUDIO-VIDEO-MEDIA: 1 800-882-4552

### SYQUEST 1-4

44MB 5.25"	.....\$42
88MB 5.25"	.....\$48
200MB 5.25"	.....\$76
270MB 3.5"	.....\$59
105MB 3.5"	.....\$55

### 5-9

44MB 5.25"	.....\$41
88MB 5.25"	.....\$47
200MB 5.25"	.....\$75
270MB 3.5"	.....\$58
105MB 3.5"	.....\$54



**\$57**

## SONY

Sony CD-ROM 74 min	.....\$13.99
Sony 10 Pack 2HD Diskettes	.....\$6.90
8mm 120 Min. Video	.....\$4.99
8mm 120 Video High Grade 120min.	.....\$5.90
8mm 180 Video Metal Evap.	.....\$24
Hi-8 120 Metal Partial	.....\$8.99
VHS 120 Min. Video	.....\$3.90
S-VHS 120 Min. Video	.....\$8.50

## TDK

3.5" Optical Disk	.....\$28.00
CD-R 63 / 74 min	.....\$12.99/\$13.99
4mm DAT 60 / 90 meter	.....\$5.99/\$6.99
4mm DAT 120 meter	.....\$18
3.5" DSD Floppy Disk	.....\$4.50
3.5" DSHD Floppy Disk	.....\$5.50
3.5" DSHD Floppy Mac	.....\$6.50

## VERBATIM



3.5" Optical 128 MB	.....\$28.00
3.5" Optical 128 MB Mac	.....\$30.00
3.5" Optical 230 MB	.....\$35.00
5.25" Optical 650 MB	.....\$69.00
5.25" Optical 1.3 GB	.....\$82.00
CD-R 63 min	.....\$12.99
CD-R 74 min	.....\$13.99

Call today for additional DAT Tapes, Floppy Disks, Flash RAM, Video, Audio, Beta, and Mini Disc!

• RADIUS • SONIC • TECHNOLOGY WORKS • SONY • NEC • KOMAG • BERNOULLI • RASTEROPS • HP • POLARIS

QUEST • PINNACLE MICRO • NIKON

## Airborne Express Overnight \$6 and up

- First quality brand new products
- P.O.'s accepted upon approval
- All major credit cards accepted - No surcharge - Charged when order shipped
- Prices subject to change - Not responsible for typographical errors

• Orders received before 8:00 pm EST weekdays shipped same day

- We export to most countries in the world
- All returns require approval and are subject to a restocking fee
- Open 8 am to 7 pm M-F, 9 am to 4 pm Saturdays
- No sales tax except applicable sales tax in WA

The LLB Company, Inc. 13228 NE 20th St., Suite B, Bellevue, WA 98005



**THE LLB  
COMPANY, INC.**

WD-045



# UPGRADES & MEMORY NETWORKING & COMMUNICATIONS



## Power PC Cache Cards

for Power PC 6100, 7100, 8100,  
and the new Performa 6100 series

256K Level 2 Cache: \$149  
512K Level 2 Cache: \$299  
1 Meg Level 2 Cache: from \$379

"Add a 1 Meg cache card to your 6100 to  
achieve 8100 performance"

**Sequoia Circuits, Inc.**  
1408 Maxwell Way, San Jose, CA 95131

MasterCard 1-800-652-1800  
408-453-1103  
VISA FAX 408-978-5754

CIRCLE 412 ON READER SERVICE CARD

## Simmsaver Technology, Inc.

manufacturers of the patent-pending family of Simm Adapters...

**SIMM+** introduces our latest evolution in flexible  
conversion/expansion products. Now you can integrate your existing  
memory with the option of future upgrade. The SIMM+ is available in 4, 16, 32 MB modules.

MAXIMIZE your  
Motherboard  
Real Estate...  
MAXIMIZE your Savings...  
MAXIMIZE YOUR MEMORY!

COMING SOON... DIMMSAVERS™

**1-800-636-7281**  
228 N. Pennsylvania • Wichita, KS 67214 • USA

CIRCLE 402 ON READER SERVICE CARD

## FAST CACHE

L2 Cache for Power Macintosh!

1024K Cache as low as \$379  
256K Cache \$155  
(CALL FOR CURRENT PRICING)

**L2** Cache  
Designers Since 1990

Power Mac speed gains up to 90%  
Easy Installation - Plug-in and GO!  
Includes FREE Benchmarking Software  
No Sales Tax Charged Outside Georgia!

15 Day "No Questions Asked"  
Money Back Guarantee (& 1 yr. warr.)  
For orders, call: (800) 527-9772  
Info: (404) 641-9650, L2@atlanta.com  
FAX: (404) 641-9433

CIRCLE 460 ON READER SERVICE CARD

## Memory Wanted

WE BUY NEW OR USED  
**SIMMS**

256K, 512K, 1MB, 2MB,  
4MB, 8MB, 16MB, 32MB.

30 Pin, 64 Pin or 72 Pin.

**POWERBOOK 2MB - 28MB**

We Buy in Quantity. Call Us or Send Fax.  
INNOVATIVE MICRO PRODUCTS, INC.  
7645 Leesburg Pike, Suite 201  
Falls Church, Virginia 22043  
Tel: 703-848-0711 Fax: 703-848-0712

CIRCLE 462 ON READER SERVICE CARD

## LOWEST PRICE ON ALL MAC MEMORY

### 30 PIN SIMMS

1X8-80/70  
1X8 FX  
2X8-80/70  
4X8-80/70  
4X8 PAL  
4X8-FX  
8X8-70  
16X8-70

### 72 PIN SIMMS

1X32-70/60 4MB  
2X32-70/60 8MB  
4X32-70/60 16MB  
8X32-70/60 32MB

### Non Composite

### FPU

68882-25  
68882-33

### PMMU CHIPS

### ALL PRINTER MEMORY

### LIFETIME GUARANTEE 1-800-662-SIMM (7466)

Data Memory Systems  
15 Union St.  
Lawrence, MA 01840  
Tel. 508-683-2325  
Fax. 508-975-5232

University, Government  
and Corporate P.O.'s  
with approved credit



### DRAM

256K DIPS,  
1MB DIPS

### VRAM

256k VRAM,  
512k VRAM 4 & 8  
BIT VRAM SETS  
1 MB VIDEO ZIPS

### POWER BOOK

100:  
2MB, 4MB, 6MB  
140,145,170  
2MB,4MB,6MB  
160,165,180  
4MB,6MB,8MB,  
10MB  
165C,180C  
4MB,6MB,8MB,  
10MB

### PB 150 & DUO 210

230, 250, 270C  
4MB, 8MB, 12MB,  
14MB, 20MB,  
28MB, 36MB

### BLACKBIRD

520, 520C,  
540, 540C  
4MB, 8MB, 16MB,  
24MB, 32MB

## Memory Upgrade Specialists

CIRCLE 447 ON READER SERVICE CARD

## TeleFinder BBS

Create Your Own GUI On-Line Service!

- ✓ Easy-to-use Electronic Mail
- ✓ Gateways to the Internet and FidoNet
- ✓ Fast ZMODEM File Transfers
- ✓ View GIF and PICT graphics online
- ✓ Conferences and Message Forums
- ✓ Multi-User Chat and Instant Messages
- ✓ File Search and Thumbnail Previews
- ✓ New TFTP and UUCP support
- ✓ Client software for Mac and Windows

Spider Island Software • 4790 Irvine Blvd #105-347 Irvine, CA 92720  
Voice (714) 669-9260 • FAX (714) 669-1383 • BBS (714) 730-5785

CIRCLE 597 ON READER SERVICE CARD

## Mac UPGRADES!

MEMORY Mac	MEMORY PowerBook
1MB 8-70NS \$32	72 PIN 11NEW \$147
2MB 8-70NS \$75	4MB (70NS) \$147
4MB 8-70NS \$128	8MB (70NS) \$285
8MB 8-70NS \$267	16MB (70NS) \$570
16MB 8-70NS \$527	32MB (70NS) \$1140

**HARD DRIVES For Mac & POWERBOOK**

Quantum "LIGHTNING" Quantum "DAYTONA"

385MB \$189 1080GIG \$579 256MB \$275 512MB \$457

640MB \$239 1440GIG \$729 512MB \$457

Mini External Drive. Housing included. \$79

**MICRO EXCHANGE** 714-390-0000 (714) 374-2559 (FAX) 374-2588

**800-610-6227**

CIRCLE 421 ON READER SERVICE CARD

## ACCELERATORS/FPU's

DOUBLE THE  
SPEED  
OF  
YOUR  
CENTIS  
OR  
QUADRA!

40MHz 68040 Centris 610 \$249/\$399  
50MHz 68040 Quadra 650/660av \$599  
Quadra 610,660av,700,900 \$599  
40MHz 040 Ilci,Ilci\*,Ilci\*,Ilci\* \$599  
33MHz 030 w/Video Mac SE \$249/\$299  
25MHz 020/FPU LC \$99  
33MHz 030/FPU LCII, P400-430 \$149  
33MHz 030 Mac II, Ilx \$149/\$199  
256K Cache Card PowerMac \$149  
68040-25 FPU Q605,610, LC475 \$249\*  
68040-33 FPU Q.LC.P575/630 \$299\*  
(\*with 68LC040 trade-in)

68882 FPU LC I-III, Duo, etc. \$49  
68851 PMMU w/Mode32 Mac II \$99

©NN© TECHNOLOGIES  
Irvine California Since 1986  
714-261-2800 Fax 714-261-2461  
**800-786-6260**

No Surcharge Gov't./Corp./Educ. P.O. One year warranty! No Surcharge

CIRCLE 463 ON READER SERVICE CARD

## Dynamic Engineering

PowerBook & Duo  
Accelerator

Portable Products  
Memory, HDD, Battery

PowerBook 500 BATTERIES  
435 Park Dr., Ben Lomond, Ca. 95005  
Fax 408-336-3840

DSCVR VISA/MC P.O.  
**(408) 336-8891**

CIRCLE 411 ON READER SERVICE CARD

## MEMORY

GUARANTEED LOWEST PRICES  
Memory for Desktops, Laptops,  
Laser Printers from Apple to Zenith

WE BUY EXCESS MEMORY  
**1-800-808-6242**

ERITECH INTERNATIONAL  
818/244-6242 FAX 818/502-5059  
740 N. Glendale Ave., Glendale, CA 91206

CIRCLE 469 ON READER SERVICE CARD



## Make your computer both a Macintosh and a UNIX workstation.

MachTen is Berkeley BSD UNIX that runs on the Classic to the Power Macintosh! So in addition to the easy-to-use applications that make Macintosh the most personable computer around, you get a MACH-based UNIX with pre-emptive multitasking.

The Macintosh/UNIX integration is so strong that you can even use Mac programs and utilities on UNIX data, and UNIX programs and utilities on Mac files. MachTen's full internet protocol support ensures fast, easy client and server NFS, electronic mail, and file transfer with all TCP-based entities on your network.



The MachTen operating system combines the high-level functionality of a networked UNIX workstation with Macintosh's wide array of applications.

The UNIX development system includes the GNU C and C++ compilers and libraries for creating new applications or port existing ones. The Motif toolkit and suite of X clients and libraries make developing distributed applications a breeze.

And Tenon's high performance X Server lets you use your Macintosh or Power Macintosh as an X terminal.

For more information, or to order  
**Call 1-800-6-MACH-10**  
internet: info@tenon.com  
http://www.tenon.com



1123 Chapala Street, Santa Barbara, CA 93101  
Tel: 805-963-6983, Fax: 805-962-8202

©1994 Tenon Intersystems. All trademarks are the property of their respective owners.

CIRCLE 468 ON READER SERVICE CARD

## PROTECT YOUR MAC WITH ALL FABRIC DUST COVERS

ALL MAC SYSTEMS CALL!  
PERFORMA 575 \$29.95  
PERFORMA 550 14" \$29.95  
PERFORMA 637 15" \$29.95  
PERFORMA 650 14" \$29.95  
PERFORMA 650 15" \$29.95  
PERFORMA 650 16" \$29.95  
PERFORMA 650 17" \$29.95  
PERFORMA 650 18" \$29.95  
PERFORMA 650 19" \$29.95  
PERFORMA 650 20" \$29.95  
PERFORMA 650 21" \$29.95  
PERFORMA 650 22" \$29.95  
PERFORMA 650 23" \$29.95  
PERFORMA 650 24" \$29.95  
PERFORMA 650 25" \$29.95  
PERFORMA 650 26" \$29.95  
PERFORMA 650 27" \$29.95  
PERFORMA 650 28" \$29.95  
PERFORMA 650 29" \$29.95  
PERFORMA 650 30" \$29.95  
PERFORMA 650 31" \$29.95  
PERFORMA 650 32" \$29.95  
PERFORMA 650 33" \$29.95  
PERFORMA 650 34" \$29.95  
PERFORMA 650 35" \$29.95  
PERFORMA 650 36" \$29.95  
PERFORMA 650 37" \$29.95  
PERFORMA 650 38" \$29.95  
PERFORMA 650 39" \$29.95  
PERFORMA 650 40" \$29.95  
PERFORMA 650 41" \$29.95  
PERFORMA 650 42" \$29.95  
PERFORMA 650 43" \$29.95  
PERFORMA 650 44" \$29.95  
PERFORMA 650 45" \$29.95  
PERFORMA 650 46" \$29.95  
PERFORMA 650 47" \$29.95  
PERFORMA 650 48" \$29.95  
PERFORMA 650 49" \$29.95  
PERFORMA 650 50" \$29.95  
PERFORMA 650 51" \$29.95  
PERFORMA 650 52" \$29.95  
PERFORMA 650 53" \$29.95  
PERFORMA 650 54" \$29.95  
PERFORMA 650 55" \$29.95  
PERFORMA 650 56" \$29.95  
PERFORMA 650 57" \$29.95  
PERFORMA 650 58" \$29.95  
PERFORMA 650 59" \$29.95  
PERFORMA 650 60" \$29.95  
PERFORMA 650 61" \$29.95  
PERFORMA 650 62" \$29.95  
PERFORMA 650 63" \$29.95  
PERFORMA 650 64" \$29.95  
PERFORMA 650 65" \$29.95  
PERFORMA 650 66" \$29.95  
PERFORMA 650 67" \$29.95  
PERFORMA 650 68" \$29.95  
PERFORMA 650 69" \$29.95  
PERFORMA 650 70" \$29.95  
PERFORMA 650 71" \$29.95  
PERFORMA 650 72" \$29.95  
PERFORMA 650 73" \$29.95  
PERFORMA 650 74" \$29.95  
PERFORMA 650 75" \$29.95  
PERFORMA 650 76" \$29.95  
PERFORMA 650 77" \$29.95  
PERFORMA 650 78" \$29.95  
PERFORMA 650 79" \$29.95  
PERFORMA 650 80" \$29.95  
PERFORMA 650 81" \$29.95  
PERFORMA 650 82" \$29.95  
PERFORMA 650 83" \$29.95  
PERFORMA 650 84" \$29.95  
PERFORMA 650 85" \$29.95  
PERFORMA 650 86" \$29.95  
PERFORMA 650 87" \$29.95  
PERFORMA 650 88" \$29.95  
PERFORMA 650 89" \$29.95  
PERFORMA 650 90" \$29.95  
PERFORMA 650 91" \$29.95  
PERFORMA 650 92" \$29.95  
PERFORMA 650 93" \$29.95  
PERFORMA 650 94" \$29.95  
PERFORMA 650 95" \$29.95  
PERFORMA 650 96" \$29.95  
PERFORMA 650 97" \$29.95  
PERFORMA 650 98" \$29.95  
PERFORMA 650 99" \$29.95  
PERFORMA 650 100" \$29.95

Unlike Plastic or Vinyl, these are  
Heat Ventilated and Will Not  
Shrink, Crack or Delaminate with  
Age. • Machine Washable  
100% Satisfaction Guarantee  
GREY, TAN, NAVY, ROYAL, RED, BLACK,  
CREAM, MAROON, BROWN, OR GREEN  
Add \$4 Shipping & Handling  
(CHECK MC, VISA, MC/AMEX)

**CALL TODAY!!**  
(800) 735-1584

Co-Du-Co COMPUTER DUST COVERS  
4802 W. WISCONSIN AVE. #200, MILWAUKEE, WI 53208  
414-476-1584 OR 414-476-9329 FAX

CIRCLE 455 ON READER SERVICE CARD

**SOFTWARE FOR THE CHURCH**  
**Management Programs:** Written in  
4th Dimension Roll Call for churches—  
Macworld\*\*\* review Aug. '93,  
Honor Roll for non-profit ministries.  
Full function demos with guide \$10.  
**Online Bible** — "The standard by  
which all other...are judged" (Kay  
Hall, CMUG-LA May '94). Basic pkg:  
KJV/NIV, Strong's, X-refs, Lexicons.  
Many a-la-carte items available.  
Written in C, Fast, easy. 10 mgs. \$75

BY THE NUMBERS, INC.  
RR 1 Box 75, Sutton NH 03221  
800-554-9116 or 603-927-4508

CIRCLE 456 ON READER SERVICE CARD

## GRADE MACHINE

**GRADING MADE EASY!**  
Grade Machine is fast, flexible and easy to  
learn! Design custom reports, narrative  
comments, graphs and much more. New  
special features for elementary, secondary,  
and college. **Affordable** site licenses and  
multi-teacher packs available. Networkable.  
"Extremely easy to learn to use."  
—Electronic Learning, 9/94, p.57

Still only \$79 +\$5 S&H  
(\$99 Deluxe Edition adds  
seating charts, attendance,  
Spanish reports & more!)

Call (800) 795-0049 to order yours today!

**90 DAY MONEY-BACK GUARANTEE!**

CIRCLE 513 ON READER SERVICE CARD

## MAC Grade

**Take the work  
out of GRADING!**  
Save time and energy with MacGrade, the pow-  
erful grade manager that's fast, fun and excep-  
tionally easy to use. Great reports and graphs.  
New! Version 2.2 has separate elementary and  
secondary/college editions.

Call (800) 795-0641  
CalEd Software  
P.O. Box 22913, Carmel, CA 93922  
60 Day Unconditional Money Back Guarantee.

CIRCLE 406 ON READER SERVICE CARD

# NETWORKING & COMMUNICATIONS ACCESSORIES EDUCATIONAL & RECREATIONAL

## Software Discounts Up to 80%!

\* Student / Teacher / School  
\* Full Packages & Latest Versions

### QuarkXpress



\$279

### PageMaker



\$249

### Desktop Publishing Bundle

QuarkXpress 3.3 or PageMaker  
5.0, + any leading photo editing  
package + any leading illustration  
package ..... \$699  
PowerMac Version ..... \$759

### SOFTWARE PLUS

Academic Inc.

### StrataStudio Pro 1.5



\$495

### Director 4.04



\$589

'Only' limited to  
what we carry.

AutoCAD Rel.12	\$199	Infini-D 2.6	\$269
Authorware Pro 3.0	\$995	Kai's Power Tools 2.1	\$84
Coda Finale 3.01	\$249	KPT Bryce 1.0	\$84
Cold Warrior Gold	\$139	Mathematica 2.21	\$179
Director 4.04	\$589	Mini CAD+5	\$319
Fontographer 4.1	\$169	Norton Utilities 3.1	\$89
Form-Z 2.6	\$995	SoftWindows 1.0	\$228
Fractal Painter 3.0	\$218	Strata Vision 3D 4.0	\$250
FrameMaker 4.0	\$399	Symantec C++ 7.0	\$149
Freehand 5.0	\$199	WordPerfect 3.1	\$99
InControl/Quicked 5	\$75		

We also Carry Adobe &  
Microsoft products

50 E. Palisade Ave. #200 • Englewood, NJ 07631  
• Info (201) 569-8262 • Fax (201) 569-0330 • SPLUSACDEM@aol

**1-800-377-9943**



CIRCLE 538 ON READER SERVICE CARD

## Practica Musica

### VERSION 3

Your personal music tutor now  
includes rhythm tapping, chord  
progressions, and many other  
exciting new features. More than  
ever the most complete music  
training package available for  
both beginners and advanced  
students. \$140

**NEW!**  
Print out this chart.  
(Use any of the better steps)

ARS NOVA • (206) 828-2711 • (800) 445-4866  
FAX (206) 889-0359 or (206) 828-2132

## Songworks

Not only prints your song,  
but helps you write it!  
Suggests tune and  
harmony ideas, plays  
prints melody, chord  
symbols, lyrics—  
with or without  
MIDI \$125

CIRCLE 595 ON READER SERVICE CARD

## REUNION®

the family tree software

**New Version!**  
Reunion quickly  
organizes your  
family informa-  
tion, displays  
pictures, shows  
relationships,  
creates large  
graphic tree charts, calendars, family group  
sheets, mailing lists, cascading pedigree charts,  
book-style family histories, and more. To order,  
call 800-334-4444. For a free brochure, contact:

Leister Productions  
P.O. Box 289, Mechanicsburg, PA 17055  
Phone 717-697-1378 — Fax 717-697-4373  
CompuServe 74774.1626 — AOL LeisterPro

## BIBLE MASTER

NAS COMPUTER BIBLE

Get them all  
together...  
New  
King James Version  
International Version  
American Standard Bible  
...add on modules  
NAS Hebrew/Greek Dictionaries  
NAS Topical Studies  
and more!

American Bible Sales  
870 S. Anaheim Blvd., Anaheim, CA 92805  
**DISCOUNT SOFTWARE PRICES**  
**1-800-535-5131**

CIRCLE 537 ON READER SERVICE CARD



# STUDENT - TEACHER - SCHOOL DISCOUNTS!

**LATEST VERSIONS & FULL PACKAGES**

**#1**

*In Education!*

**QUARKXPRESS**  
3.3.1 - \$299

**AUTOCAD 12**  
\$199

**ARCHICADD 4.5.5**  
\$495

**DIRECTOR 4.04**  
\$589

**FREEHAND 5.0**  
\$195

**OMNIPAGE PRO**  
5.0 - \$349

**STRATA STUDIO**  
PRO 1.5.1 - \$495

4TH DIMENSION 3.2	\$475	MAC WRITE PRO 1.5	\$85
A.I.R. FRESCO	\$95	MATHCAD 3.1	\$89
ALCHEMY 3.0 MAC	\$279	MATHEMATICA 2.2.2	\$175
AMERICAN HERITAGE DLX	\$65	MINICAD +5.01	\$319
ARRANGE 2.0	\$149	M.Y.O.B. 5.0 WITH PAYROLL	\$90
ASTOUND 1.5	\$129	M.Y.O.B. 5.0 W/OUT PAY	\$49
AUTHORWARE PRO 3.0	\$975	NISUS WRITER 4.0	\$149
CANVAS 3.5.2	\$175	NOW BUNDLE 3.0	\$75
CLARIS DRAW 1.0	\$129	NOW UTILITIES 5.0	\$59
CLARIS WORKS 3.0	\$89	ORGANIZER 2.0	\$65
CODA FINALE 3.2	\$249	PAINT ALCHEMY 2.0	\$49
CODE WARRIOR GOLD 5	\$149	QUICKEYS 3.0.1	\$85
COLLAGE 2.01	\$175	RAM DOUBLER 1.5	\$55
CS CHEMOFFICE PRO 2.0	\$299	RAY DREAM DESIGNER 3.0	\$179
DATADE	\$329	SHOWPLACE 2.2 CD-ROM	\$149
DELTA GRAPH PRO 3.5	\$95	SKETCH 2.0	\$249
DESIGN WORKSHOP 1.2	\$249	SMALLTALK 5 2.0	\$99
ENCORE 3.0.7	\$249	SOFT PC 3.0	\$89
FAST TRACK SCHEDULE	CALL	SOFT WINDOWS 1.0	\$229
FONTGRAPHER 4.1	\$175	SOUND EDIT 16	\$199
FORM. Z 2.62	CALL	SPANISH PRO TRANSL.	\$349
FRACTAL PAINTER 3.0	\$219	STRATA VISION 3-D 4.0	\$249
FRAME MAKER 4.04	\$399	SUPERCARD 2.0	\$149
FULL CONTACT	\$79	SUPERCARD 2.0 BUNDLE	\$249
IN-CONTROL/QUICKEN 5	\$85	TERRAZZO	\$95
INFINI-D 2.6	\$249	TEXTURESCAPE 1.5	\$85
INSPIRATION 4.1	\$89	TYPESTRY 2.1.1	\$135
JMP VERSION 3.1	\$329	UP-FRONT 3-D 2.0	\$125
KAI'S POWER TOOLS 2.1	\$85	VELLUM 3-D 2.5	\$695
KPT BRYCE 1.0	\$85	VIDEO FUSION 1.6	\$275
KPT CONVOLVER	\$85	VIREX 5.5	\$60
LOGOMOTION 1.5	\$75	WALKTHROUGH PRO 2.0	\$249
LOTUS 1-2-3 V1.1	\$99	WACOM ART PAD 4X5	\$139
MAC ACADEMY VIDEOS	\$39	ART PAD 4X5 W/ DABBLERS	\$169
MAC DRAFT 4.1	\$199	WACOM ARTZ 6X8	\$285
MACROMODEL 1.5.2	\$429	WORD PERFECT 3.1	CALL

**\*\*SAME DAY SHIPPING ON MOST ITEMS.**

**\*\*ADOBE, SYMANTEC & MICROSOFT PRODUCTS AVAILABLE TO QUALIFIED STUDENTS, TEACHERS & SCHOOLS.**

**\*\*THOUSANDS OF OTHER TITLES AVAILABLE.**

**\*\*SCHOOL PURCHASE ORDERS WELCOME.**

**\*\*NO SURCHARGE ON CREDIT CARDS.**

**\*\*IBM & MAC PRODUCTS AVAILABLE.**

**CALL FOR  
FREE  
CATALOG!**

*The*  
**SOFTWARE**

*Source*

**WE WILL BEAT ANY ADVERTISED PRICE!!**

**1-800-289-3275**



2517 Hwy 35, Bldg L  
Manasquan, NJ 08736  
(908) 528-0030

FAX (908) 528-9378

EMAIL: SFTSWS@AOL.COM

CIRCLE 570 ON READER SERVICE CARD



**U.S. Digital Topography  
CD-ROM**

- Color shaded relief maps
- Individual state maps
- State detail at 1:530,000
- Editable in applications which read PICT graphics

Eastern U.S. \$99

Western U.S. \$99

Chalk Butte Digital Maps

Visa 307-537-5261 M/C

CIRCLE 419 ON READER SERVICE CARD



**THE ULTIMATE TRAINING AID** - Over 6 hours of screen movies, led by an experienced instructor. On each CD you will find these features:

**MASTERCASSES** - approximately 200 movies taking you through the application step by step

**REFERENCE** - Look up menus and dialogs

**EXERCISES/TIPS** - Helping you learn by practice

**JARGON** - Learn technical jargon

**AVAILABLE TITLES INCLUDE:**

Quark Xpress 3.3, Illustrator 5.5, Pagemaker 5,

Photoshop 3, and Mac Troubleshooting

New titles under development - call for details

DEALER ENQUIRIES WELCOME - FOR ORDERS CALL (408) 492 1051

CIRCLE 436 ON READER SERVICE CARD

**100 PHOTOGRAPHED  
TEXTURES  
CD-ROM**

**Patterns & Backgrounds**

**\$39.99**

plus \$5.00 S&H

CA residents add applicable sales tax

**100 ROYALTY FREE PHOTOGRAPHS!**

100 high-res PhotoCD format color photos of textures, patterns and backgrounds, including marble, granite, wood, balloons, metal, sand, clouds, denim, mud, stucco, snow, ice, leaves, satin, brick, graffiti and more!

**PHOTOS YOU CAN USE, NOT JUST LOOK AT**

DW Graphics • 445 W. Weber, Ste. 132 • Stockton, CA 95203

(209) 939-3055

CIRCLE 457 ON READER SERVICE CARD

**LXR-TEST BEST IN TESTING**

Highest-rated software for every testing environment: classroom, school, district, governmental, industrial and certification.

- ✓ Item Banking & Test Production
- ✓ Test Scoring w/Group Comparison
- ✓ Mastery Reporting & Remediation
- ✓ Survey Scoring and Analysis
- ✓ Interactive Testing with Movies
- ✓ Weighted & Multi-Response Grading
- ✓ Accommodates All Question Types
- ✓ Integrated Design (Mac & Windows)

Logic eXtension Resources 909-980-0046 Fax: 987-8706  
7168 Archibald Ave. Suite 240  
Rancho Cucamonga, CA 91701

CIRCLE 407 ON READER SERVICE CARD

**New PHOTO CD  
YOU WANT IT!**

**The Digital Photography Specialist**

- ▲ Repro and Pro Scans (35mm to 4x5)
- ▲ Encryption and Watermarks (your customized watermarks)
- ▲ Scan to magnetic media
- ▲ Import TIFF images

**800 735-1950**

PalmerPhotographic

2313 C St. Sacramento, CA 95816

CIRCLE 431 ON READER SERVICE CARD

**Free CDROM Catalog**  
Mac Internet CDROMs  
—InfoMac, Hyperstacks,  
—MacGames, MacSource  
Paper backgrounds CDROMs  
Color Illustrations CDROM  
Photograph CDROMs  
Jupiter Impact CDROM

\$39.95 each + \$5/US \$9/Int s&h

Pacific HiTech, Inc.  
Tel: 801-261-1024  
Fax: 801-261-0310  
800-765-8369  
eMail: orders@pht.com

CIRCLE 414 ON READER SERVICE CARD

**The World of Comics  
As You've Never Seen it Before**

The ComicBase Encyclopedia of Comics is a fantastic, interactive comic book encyclopedia on CD-ROM. It contains write-ups and artwork for over 2,000 titles with notes and pricing information on over 45,000 comics! Also features Hypertext cross-referencing, price graphs and much more!

**Only \$69**

To order, call

**800/774-9016**

Human Computing

1605-A Ottawa Court,

Sunnyvale, CA 94087

CIRCLE 452 ON READER SERVICE CARD

**Bible Book Store On Disk**

Full Featured, Fast and Friendly Bible Study software. As the leader in Bible Study software since 1981 we have continued to listen to our customers and provide them with the tools they need. We offer the most comprehensive line of Bible study tools available.

Call for FREE catalog.

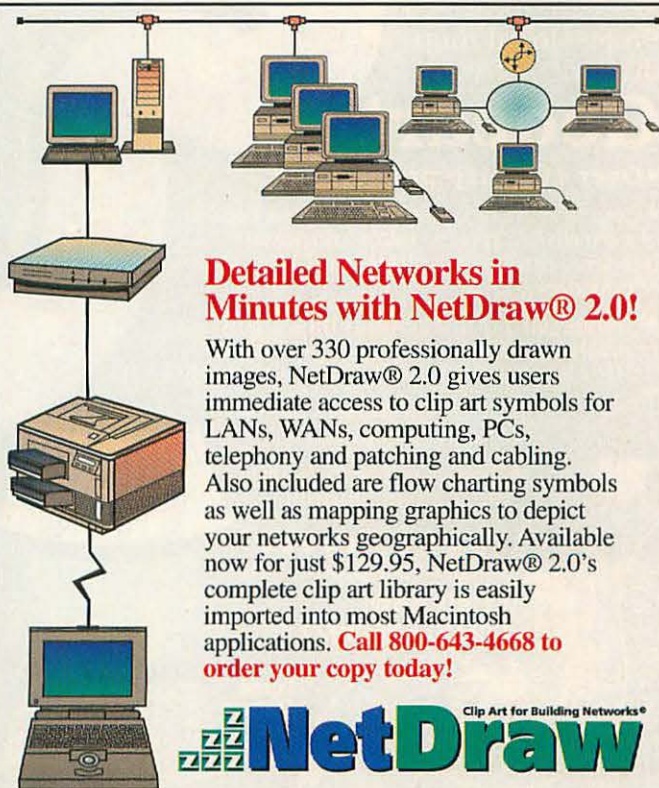
**Bible Research Systems**

2013 Wells Branch Pkwy #304

Austin, TX 78728

**800/423-1228**

**512/251-7541**



**Detailed Networks in  
Minutes with NetDraw® 2.0!**

With over 330 professionally drawn images, NetDraw® 2.0 gives users immediate access to clip art symbols for LANs, WANs, computing, PCs, telephony and patching and cabling. Also included are flow charting symbols as well as mapping graphics to depict your networks geographically. Available now for just \$129.95, NetDraw® 2.0's complete clip art library is easily imported into most Macintosh applications. **Call 800-643-4668 to order your copy today!**

**NetDraw** Clip Art for Building Networks®

CIRCLE 461 ON READER SERVICE CARD

**SLAPSTICKS  
Laser Bumper Stickers**

Use **Slapsticks** to create your own laser bumper stickers. You supply the message, we supply the blank stickers.

**Slapsticks** are high gloss, removable stickers for laser printers and are available in two sizes. **\$19.95**

Free software for designing and printing **Slapsticks** is included.

**ORDER NOW! 800-310-0890**

(509) 624-5170 • Fax (509) 624-0189

Williams & Macias, Inc.

CIRCLE 435 ON READER SERVICE CARD

**Family Heritage File™**

**Genealogy.** New Version 3.3! Most powerful and easy genealogy program on Mac. Rated "BEST" by Macworld. Designed by genealogy professionals. • Stand alone • Graphic Pedigree, Descendants, Family Group, Individual, Marriage, Surname • Unlimited History • Sorted Lists • Export to WP/data base/modem • GEDCOM compatible • Jewish/LDS features. \$149 + 5 s/h. Ask about Family Heritage Bundle. Visa/MC. Demo \$7. Free Lit Pak.

**StarCom Microsystems**

Windsor Park East

25 West 1480 N., Orem, UT 84057

**801/225-1480**

POSTERS MURALS BILLBOARDS BACKDROPS TRADESHOW EXHIBITS BANNERS

**THE ONLY FAST, EASY,  
ECONOMICAL WAY TO CREATE  
LARGE-FORMAT PRINT JOBS.**

- Layouts up to 10,000 square feet
- Imports EPS, TIFF, Scitex CT artwork
- Drives any PostScript printer
- Fixed, custom and automatic tile sizes
- Variable panels, margins, gaps, overlaps, bleeds
- Hundreds of professional large-format production tools
- Supported by a network of service bureaus nationwide

For info call: (617) 338-2222 or fax: (617) 338-2223

Now at MacWarehouse! 1-800-255-6227

©1994 S. H. Pierce & Co.

Ste. 323 Bldg. 600, One Kendall Sq., Cambridge, MA 02139



**PosterWorks**

POSTERS MURALS BILLBOARDS BACKDROPS TRADESHOW EXHIBITS BANNERS

CIRCLE 594 ON READER SERVICE CARD



## Award-Winning Photos on CD-ROM!

PHOTODISC™

Perfect for ads,  
newsletters, brochures,  
stationery and more!

- High resolution, ready for color or B&W printing or laser output.
- Royalty free for marketing, advertising, multimedia and more.
- Artistic and technical quality makes PhotoDisc the 10 to 1 favorite.

Preview PhotoDisc  
for Only \$29!

Over 4,000 low-res images plus 25 high-res images. You also get this 232 page image reference book. An incredible value!



**CALL TODAY**  
HAVE IT ON YOUR DESKTOP  
TOMORROW!

**1 800 528 3472**



CIRCLE 430 ON READER SERVICE CARD

There's a **better** way

*to keep people interested  
in your presentations.*



TA! PA!

**500 photos** to give your presentations more oomph! Open your eyes to all the possibilities for just **\$79.**

**Call to order:**  
**1 800 528.3472**

Free catalog.

**CLIPPIX™**  
FROM PHOTODISC™

CIRCLE 429 ON READER SERVICE CARD

Professional map  
drawing software

## Geocart

- **Over 100 map projections!**
- Comes with detailed vector data bases of coastlines, rivers, lakes, national borders, provinces, cities, and U.S. states & counties.
- Comes with 6 image data bases with resolutions of up to 4 pixels per degree. (Higher resolutions for sale separately.)

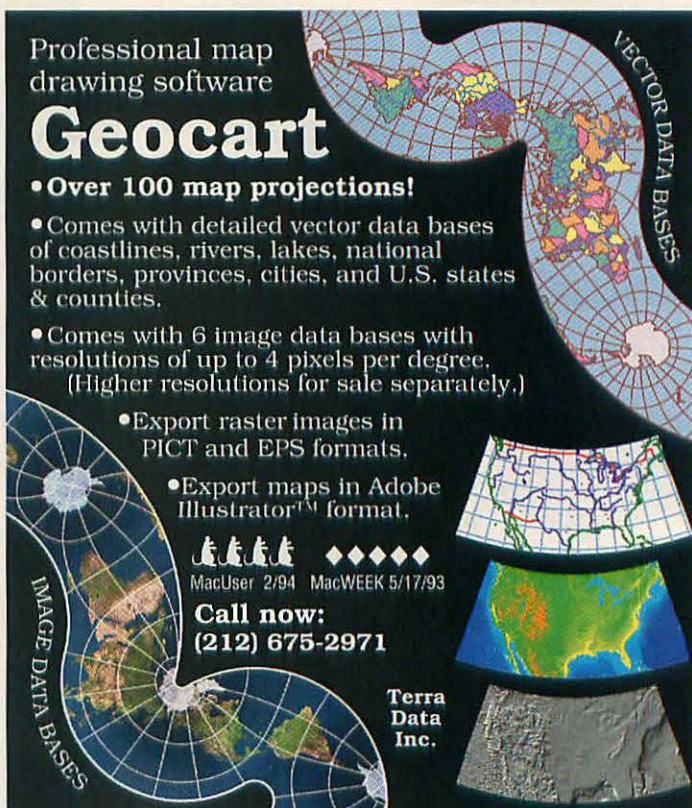
• Export raster images in PICT and EPS formats.

• Export maps in Adobe Illustrator™ format.

MacUser 2/94 MacWEEK 5/17/93

**Call now:**  
**(212) 675-2971**

**Terra  
Data  
Inc.**



CIRCLE 599 ON READER SERVICE CARD



**MAP Art** MAPS FOR GRAPHIC DESIGN

FULLY EDITABLE WITH ILLUSTRATOR, FREEHAND & OTHER PROGRAMS!

World Maps  
Continents  
Major Countries with States & Provinces  
US States with Interstates, State Highways, 3 Digit Zip Areas & Counties!

Visit us at MacWorld Expo Booth 951

**CARTESIA**  
5 S. Main St., Box 757  
Lambertville, NJ 08530  
Voice 609-397-1611  
24 hr. FAX 609-397-5724

**CALL FOR FREE CATALOG**  
**800 334-4291**

**New Instant Logos**

More than 1,000 logo designs — ready to use in EPS format. Eight different graphic categories. Available on Floppy or CD-ROM. \$69. (Call for free brochure.)

**Logo Design Software**

Logo SuperPower lets you create world class designs like these in minutes. Available for Mac or PC on Floppy or CD-ROM. Requires drawing program such as Illustrator, Freehand or Corel Draw. LSP Basic — \$119  
LSP Extended — \$279 (Call for free brochure)

Decathlon Corporation (800) 640-5646 or (513) 421-1938  
4100 Executive Park Dr. #16, Cincinnati, OH 45241 (Visa/MC/AmEx)

**Super Anatomy Collections**  
"...technically and artistically superior."

**LifeART**  
Professional Medical Clip Art

**Super Anatomy 1, 2, 3**  
Now Shipping!

- 400 New Images
- 100% Compatible in all Mac Software
- Editable in Illustrator and MacDraw Pro!

TechPool Studios  
Cleveland, Ohio  
Tel: 216-291-1922  
Fax: 216-382-1915

**FREE Catalog**  
**800-LifeART**  
549-3278

**-DIGITAL COLOR PRINTS-**

**BIG, BEAUTIFUL AND IMPRESSIVE.**

Merge text, graphics and photos from your disk or original art. Produce posters, billboards, back-lits, convention displays and P.O.P. displays from Mac or PC from 8-1/2" x 11" up to 52" x 30" in one piece.

**T-SQUARE EXPRESS**  
998 W. Flagler St.  
Miami, FL 33130  
1-800-432-3360  
B.B.S. (305) 545-8180

**Power Macintosh • FORTRAN 77**

LS FORTRAN is an ANSI standard FORTRAN 77 compiler for the Macintosh or Power Macintosh. Features include: build-in debugging, support for mainframe extensions, background execution, scrolling output window, and optimized code generation. This popular, robust compiler is the complete solution to your FORTRAN programming needs.

**Language Systems Corp.**  
100 Carpenter Drive  
Sterling, VA 20164  
800/252-6479 • 703/478-0191  
703/689-9593 Fax

**ARTBEATS**

**Award-Winning Backgrounds on CD**  
800-444-9392 or 503-863-4429  
Artbeats, Box 709, M.C. OR 97457, Fax: 503-863-4547

**Results! Are what our customers want...**

And results are what they get via

- 50 Vector Input Formats - 2D & 3D
- 40 Vector Output Formats - 2D & 3D

Results that work for dozens of professions, throughout your office or manufacturing plant... work easier, work smarter with -

**CADMOVER® - Graphic Translator**

Call 703-532-0213 for more information.

**KANDU**  
Software Corporation

**ATTENTION CROSS PLATFORM COMMUTERS**

**SHIFT INTO THE FAST LANE WITH PKZIP!**

CALL FOR INFORMATION  
513 885-2031

The world's most popular data compression comes to Mac!

**ASI**

ASCENT SOLUTIONS Inc. (ASI)  
10460 Mshg-Springboro Pike • Miamisburg, OH 45342  
(513) 885-2032 FAX • (513) 885-2033 Data

**!!!Repairs by Mail!!!**

Repairs from \$5.00!!! Same-day turnaround in most cases!! New and used hardware for sale! We buy dead Apples, Macs, PCs. Noon to 5:00, 6:30 to 10:00.

**Arminius**  
8519 Orchard Avenue  
Merchantville, NJ 08109  
609-662-3420 (voice)  
609-662-6460 (fax)

**Data Recovery (800) 765-9292**

We successfully Recover Data 98% From Drives With:

- Bad Motors
- Electronic Failure • Mechanical Problems • Damaged Heads
- Missing or Bad Boot Sectors
- Damaged or Missing Partitions
- FAT and Bit Map Errors
- Damaged Directory Structure
- Accidental Mishandling
- Fire & Flood Damage
- At a Reasonable Cost!

**CPR Recovery Services**  
11440 Okeechobee Rd. Suite 201  
Royal Palm Beach, FL 33411  
(407) 795-7266 BBS (407) 791-2189

**SAFWARE**

**Insures Your Computer**

The Computeroowners<sup>SM</sup> Policy insures you against theft, fire, accidental damage, lightning even power surge! Replace or repair for \$49 a year. Available in the U.S. & Ontario.

**1-800-800-1492**

SAFWARE, The Insurance Agency Inc.  
2929 N. High St., PO Box 02211  
Columbus, OH 43202

**MAC REPAIR**  
Mac Shop Northwest

- Apple<sup>TM</sup> Certified Technicians
- One-Day Service Turnaround\*
- Hard Disk Repair & Data Recovery
- Up to 75% below Dealer Rates
- Component-Level Repairs
- Expert Advice and Prices by Phone
- Power Supplies & Logic Boards\*
- Lifetime Repair Warranty\*

Tel: 1-503-642-3456  
\*on many repairs. Visa/MC/AX. Fast overnight shipping available. We use genuine Apple<sup>TM</sup> parts.

**1-800-MAC-SHOP**

**DATA RECOVERY IN HOURS.**

- Over 10 years of experience with clients including Apple, NASA, & FedEx.
- We've recovered more than half-a-million megabytes of Mac Data.
- One-Day turnaround available.
- Successful recovery is guaranteed.
- Call 24-hours a day.

**LAZARUS**  
DATA RECOVERY

**800-341-DATA**  
415-495-5556 FAX 415-495-5553 RESTRICTIONS MAY APPLY  
301 Clementina Street • San Francisco, California 94103

**QUANTITY DISCOUNTS !**

**Iris Prints**  
as low as **\$10.50** (up to 10.6 x 17.2)

**Linotronic Output**  
as low as **\$ 3.75** (1270 dpi - 8.5 x 11")

**Displaymaker Ink Jet Prints**  
starting at **\$35.00** for 16 x 20  
Ink Jet Prints up to 3' x 16'

Mac/Pc Files • Canon Flery Lasers • Scans  
Mounting/Laminating Service  
24 hr Modem - (212-869-6963)  
Fax (212-869-5727) - (VISA/MC/AMEX)

**CALL US TODAY - 212-869-6960**

**MET PHOTO INC.**  
1500 Broadway, N.Y., N.Y. 10036



# SERVICES & SUPPLIES

## SPECIALIZED MARKETS



### DATA RECOVERY

- Expertise in Macintosh & virtually every operating system & storage device - including tape & removable media
- 24-Hour Worldwide Support with on-site, weekend, and priority service
- Professional Service Authorized by major manufacturers



**Ontrack**  
DATA RECOVERY

MN: 1-800-872-2599  
CA: 1-800-752-7557

London: +44 (0)181 974 5522 • Germany: 0130-815-198 • France: 05 90 72 42 • Japan: (0429) 32-6365  
~ Ask about our referral programs ~  
CIRCLE 459 ON READER SERVICE CARD

**"If it hadn't been for DriveSavers, our information would have been lost forever."**  
-S.S., Sebastopol



As the only all-Mac data recovery company, we've saved more megabytes of Mac data than anyone else in the world. We're certified by every Mac drive manufacturer. Our proprietary techniques are so advanced we can rescue data others might simply abandon.

**1-800-440-1904**

Restoring data-and peace of mind-since 1989

400 BEL MARIN KEYS BL. • NOVATO, CA 94949 • FAX: 415-883-0780 • PH: 415-883-4232  
CIRCLE 510 ON READER SERVICE CARD

### Native Application for Power Macintosh

**HiQ**  
Real-World Math  
for Macintosh

#### Notebook Interface

- Interactive analysis and graphics in a WYSIWYG notebook interface
- Insightful 2D and 3D graphics
- Annotation for technical reports, journals, and presentations
- Publication-quality output

#### Numerical Analysis Power

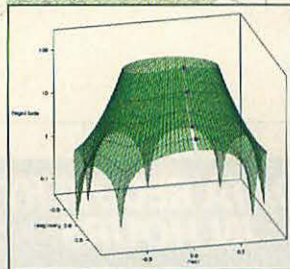
- More than 600 math, scientific, and engineering functions
- Efficient algorithms with optimal convergence
- User-defined error tolerances

#### Problem Solvers

- Intuitive GUIs for solving sophisticated problems
- Automatic code generation

#### HiQ-Script

- A language built for scientists, engineers, and mathematicians



Call for FREE demo,  
(800) 433-3488 (U.S. and Canada)

**NATIONAL INSTRUMENTS**  
The Software is the Instrument™

6504 Bridge Point Parkway  
Austin, TX 78730-5039  
Tel: (512) 794-0100  
Fax: (512) 794-8411

© Copyright 1994 National Instruments Corporation. All rights reserved. Product and company names listed are trademarks or trade names of their respective companies.

CIRCLE 444 ON READER SERVICE CARD

### DIGITAL SERVICE BUREAU

Slides • Overheads  
4x5's • Big Posters  
Canon's • Dyesubs

**Photo CG**

Professional PrePress Scans  
35mm format-\$ .90 Pro/4x5-\$8

Digital 4-Color Offset Printing  
Call For Details...

Satisfaction Always Guaranteed

**IMAGERS**  
(800) 232-5411

1575 Northside Dr. Bldg. 490 Atlanta 30318

CIRCLE 456 ON READER SERVICE CARD

- ♦ 35mm Slide Imaging
- ♦ Custom Presentations
- ♦ Slide Duplication
- ♦ Digital Prints & Overheads



**SuperiorGraphics**

Call for Information:  
**(800) 925-1117**

8111 LBJ Freeway, Suite 200  
Dallas, Texas 75251  
(214) 235-2226



CIRCLE 467 ON READER SERVICE CARD

**DATA RECOVERY**  
**MACINTOSH SPECIALIST**  
• REMOVABLE AND OPTICAL DRIVE  
• CARTRIDGE • POWERBOOK  
• HARD DRIVES AND FLOPPY DISK  
• Data Recovery Since 1989  
• No Evaluation Charge • 1-2 Day Turnaround  
• Mechanical/Electronic Failure, Virus or Data Corruption is Guarantee Recovery or It's Free  
• Hard Drive Data Recovery Perform in Clean Room  
**1-800-469-2549**

**MICRO COM**

4448 INDUSTRIAL STREET SIMI VALLEY CA 93063  
TEL 805-582-9082 FAX 805-582-9102  
CIRCLE 471 ON READER SERVICE CARD

**DATA RECOVERY**

- All Rotating Media
- Best Success Rate
- Reasonable Rates
- Highly Recommended

**The Data Recovery Company**

**TOTAL RECALL**  
800.743.0594

Saving Data Since 1987  
2462 Waynoka Rd. • Colorado Springs, CO 80915  
719-380-1616 • FAX 719-380-7022

CIRCLE 458 ON READER SERVICE CARD

Chromascript  
& Forte  
NOW AVAILABLE!  
Iris & 3-M Rainbow Prints  
Overnight and Economy Service  
Experts in Mac/PC Imaging  
Now Imaging 4x5  
Starting at \$3.50 per slide  
**NEXT WAVE PRODUCTIONS**  
24 hr BBS  
24/72 hr service  
Volume discounts  
3-5 hr immediate svc.  
High volume slide duplication  
Scanning and production services  
Multimedia presentations and kiosks  
**212/989 2727 800/445 9002**  
CIRCLE 488 ON READER SERVICE CARD

**SLIDES**

From PC & Mac files \$3.75  
4x5 chromes/negs \$20  
Dye sub print/overhead \$18  
Hi Res Scanning \$10

Call for special pricing on Quantity  
Duplication of Slides & Overheads

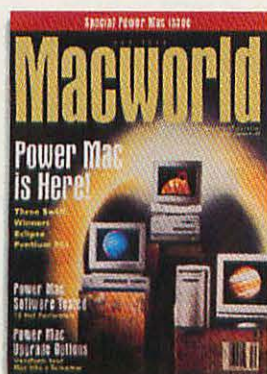
**Show & Tell** 39 W 38th St., NY, NY 10018  
**212 840 2912 • 212 840 7953 (fax)**

CIRCLE 455 ON READER SERVICE CARD



# Congratulations

to the Winners of the 9th Annual Computer Press Awards!



**Best Computer Magazine**  
(Circulation more than 100,000)

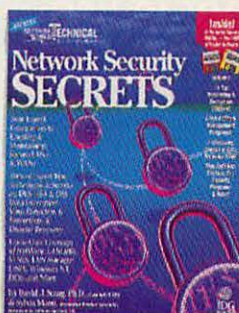
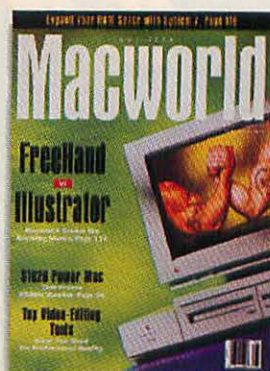


**Best Computer Newspaper**  
(Circulation more than 100,000)

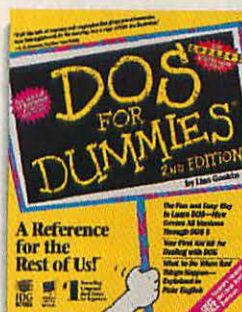


**Best News Story in a Computer Publication**  
("DOS 6.0" by Stuart Johnson, Doug Barney and Kevin Strehlo)

**Best Computer Columnist**  
(Deborah Branscum, "Conspicuous Consumer")



**Best Advanced How-to Book: Systems**



**Best Introductory How-to Book: Software**

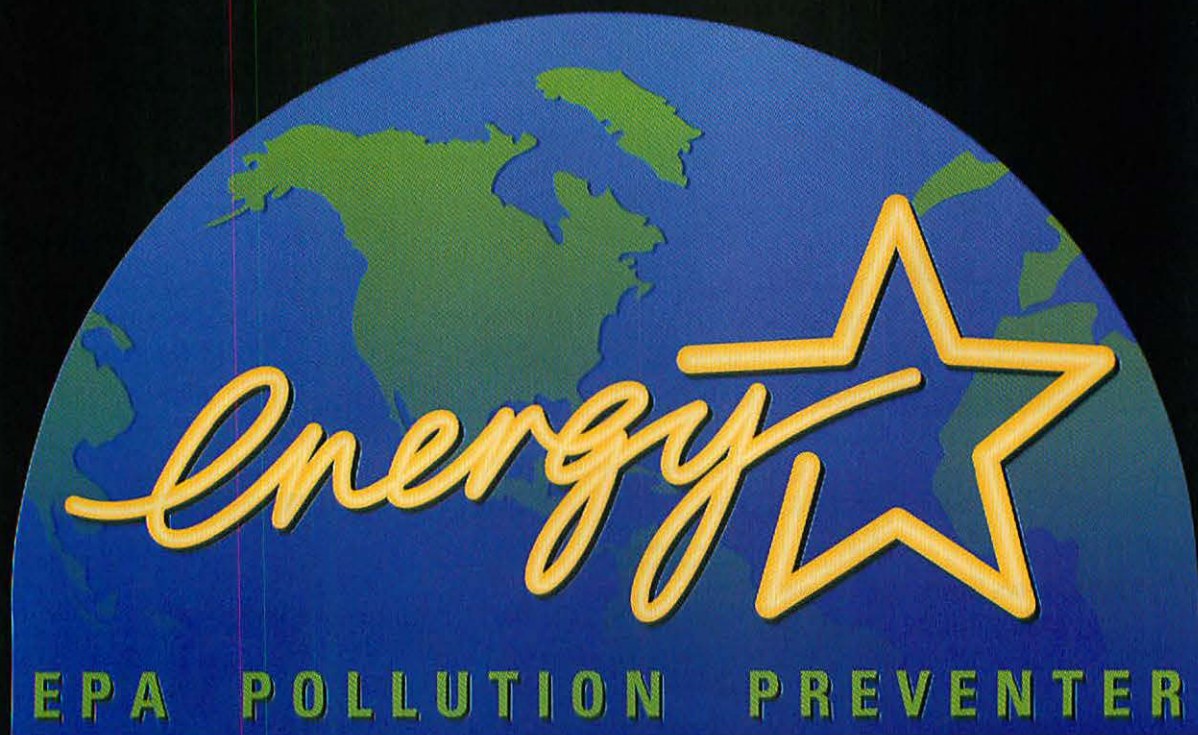
Once again, IDG dominated the annual Computer Press Awards, winning more awards than any other publishing company. If you're looking for editorial excellence in information technology publications, IDG is where you find it.



**IDG**  
INTERNATIONAL DATA GROUP  
Where you find I.T.



# Pollution Solution.



This symbol identifies energy-efficient computers that save you money and reduce air pollution by "powering down" when not in use.

Over 2000 computers, monitors and printers have earned the right to bear the Environmental Protection Agency's Energy Star<sup>SM</sup> logo. These computers are so smart, they go to sleep when not in use and wake up with a simple touch of the keyboard or mouse. Energy Star<sup>SM</sup> Computers don't cost

any extra, will save money on your energy bill, and prevent pollution from electricity generation. Be part of the solution and look for this logo when you make your next computer purchase. To receive a list of available products call the Energy Star<sup>SM</sup> Hotline at 202 775-6650.



*Buy It And Save.*



# FREE CD-ROM Catalog!

"The Granddaddy of all CD-ROM catalogs is EDUCORP."

— Software Publisher

Foreign customers send \$4 p/h for the catalog. With any purchase, you'll get EDUCORP's informative newsletter, free!

Prices subject to change without notice. Dealer inquiries welcome.

## FREE Shipping

Free express 2-day shipping on products marked with an '✚'.

## Over 1,100 CD-ROM Titles in Stock

### Games

50858	Blade	\$19.95
50840	Arc of Doom	44.95
50573	Sea & Sky	27.95
50439	Spectre VR	49.95
50532	Theme Park	43.95
P1583	Spaceship Warlock Non-AV	19.95
50198	Dragon's Lair	39.95
50107	Myst	47.95
50588	Skull Cracker	49.95
50599	Simtown (for kids)	38.95
50821	Lemmings/Oh No More	37.95

### Entertainment

50661	4 Paws of Crab	\$29.95
50389	Cookbook U.S.A.	27.95
50699	People Magazine 20 Yrs of Pop	22.95
50695	Dazzleoids	27.95
50319	Freak Show	34.95
50403	Maus	34.95
2095	A Hard Day's Night	27.95
50696	For All Mankind	27.95
1457	From Alice to Ocean	49.95
50820	Blam!	18.95
50757	Headcandy	26.95
50756	Residents Gingerbread Man	33.95
50556	Bubblegum Crisis Screen Saver	22.95
50548	Money in the '90's	29.95
50294	Xpore 1: Peter Gabriel's World	47.95
50657	Project A-KO Screen Saver	22.95
1300	EDUCORP Shareware 9.0	99.95
50642	Cosmology of Kyoto	67.95
50803	Sports Illustrated Almanac	39.95
50340	Marilyn & André	54.95

### Education

50801	Cartoon History of Universe	\$33.95
50639	Small Blue Planet Cities Below	32.95
2090	Small Blue Planet Real Picture	37.95
50299	Learn to Speak Spanish 4.0	99.95
1642	Family Doctor	47.95
50421	Learn to Speak French 4.0	99.95
50278	Learn to Speak Japanese 3.0	63.95
1460	Mayo Clinic Family Health Bk.	37.95
50113	Mayo Clinic The Total Heart	19.95
50624	A.D.A.M. The Inside Story	49.95
50870	Math Rabbit Deluxe	44.95
50867	Reader Rabbit 1 Deluxe	44.95
50880	Reader Rabbit 2 Deluxe	44.95
50881	Circus	27.95
50014	Oregon Trail	39.95
50836	Amazon Trail	42.95
50835	Yukon Trail	42.95
2078	Animal Alphabet	29.95

### Reference

50719	Vistapro	\$62.95
50122	Redshift MM Astronomy	49.95
50841	3D Atlas	67.95
50317	Street Atlas USA	69.95
50110	Encyclopedia of Dinosaurs	39.95
1260	Encyclopedia of Life	54.95
2081	ZooGuides v.1: Butterflies/World	39.95
1210	ZooGuides v.2: Whales/Dolphins	39.95
1275	ZooGuides v.3: Mammals/Africa	39.95
50300	ZooGuides v.4: Rainforest	39.95
50817	ZooGuides v.6: Life in Desert	39.95
50556	Masterworks/Japanese Paint.	52.95
50037	History of the Blues	29.95
50852	Encarta '95	83.95
50309	Cinemania '95	56.95
1333	Groliers MM Encyclopedia	83.95
	<b>FREE</b> The Animals: San Diego Zoo.	
50246	PhoneDisc PowerFinder	139.95
50196	Select Phone	179.95
50671	Old Testament	99.95
50789	American Heritage Dictionary	37.95
50847	Amazing Animation	39.95
50617	Macmillan Dictionary Children	19.95
50863	The Way Things Work	48.95

### Desktop Publishing

50447	EDUCORP Photo Sampler 2.0	★	\$9.95
50329	EDUCORP Clip Art Sampler	★	9.95
50204	Professional Backgrounds	★	64.95
50442	Earth & Space Photos	★	19.95
50590	Royalty-Free Food	★	54.95
MB1	Medical Library Bundle	★	99.95
	2-CD set. 200 royalty-free stock photos.		
1680	Graphtec Graphic Designs	★	39.95
P1330	Clip Art 3.0	★	19.95
50073	Design Toolkit Pro	★	79.95
50885	Missy Hamilton's Textures	★	49.95

### Sale! As low as \$3.95

P1948	Sports Illustrated 1991 Almanac	\$5.95
L1774	I Photograph to Remember	9.95
L1777	Mozart: Dissonant Quartet	16.95
L1875	600 Days to Cocos Island	7.95
F900	Apple QuickTime CD	3.95

### CD-ROM Drives



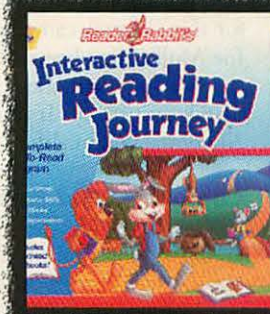
3501	Porta-Drive T3501 (Quad Speed) . . . \$399
	Free Lunicus, Mister X and CD Sampler.
	Access Time: 150 ms, Data Transfer: 630 Kb/sec

More drives & bundles available, call.

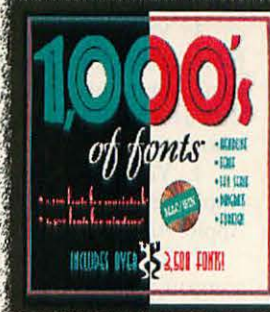
\*Titles are in KODAK Photo CD Format.



Midnight Stranger \$59.95  
✚ #50318 Adults Only



Interactive Reading Journey \$84.95  
#50869



1,000's of Fonts \$19.95  
#P2087

**EDUCORP WILL BEAT ANY ADVERTISED PRICE**  
ON CD-ROM PRODUCTS

The Multimedia Pioneer

\*some restrictions apply

# EDUCORP 1-800-843-9497

W35

7434 Trade Street ■ San Diego, CA 92121 ■ Info: 619-536-9999 ■ FAX: 619-536-2345 ■ Internet: service@educorp.com

Circle 157 on reader service card





# The Mac Attack Test

*Is Macintosh taking up too much of your life?*

**N**O ONE IS MORE FERVENT about a cause than the newly converted. Thousands of people got Performas and other Macs for Christmas a few months ago, and by now they are entirely immersed in Macintosh lore, lingo, and lust. This column is intended for new owners of Macintoshes. It provides a way for them to determine if Macintosh is taking over their lives. (The idea for this column came from a column by Joe Mullich in *American Way* magazine.)

Give yourself one point for each item that describes you. If you score more than 20 points, you qualify.

## Companies and Personalities

1. When you hear the name *Robin Williams*, you think "goddess of desktop publishing" instead of "comic genius."
2. You hate Bill Gates, but you're not sure who he is. You despise Windows even though you've never used it. You're sad that Microsoft is buying Intuit, but you don't know why.
3. You try to follow the career of John Sculley since he left Apple, and you think Apple needs to get Steve Jobs back. But, as with Bill Gates, you're not sure who they are.
4. You think you know how to run Apple better than anyone who works at Apple. And you're only 16 years old.
5. You refuse to do business with any company that uses dumb quotes in their ads. The first thing you do when you get a word processing file from someone is search for double spaces.

## Using Macintosh

1. Your dinner party guests end up discussing the pros and cons of paragraph- and selection-oriented style sheets. You decide that you'd better start using style sheets since you've been debating their design characteristics.
2. Your collection of software CDs is overtaking your music CDs. And you cashed in your financial CDs to buy your kids a Macintosh, justifying it as "a better investment than 5 percent interest."

3. You lust for a 600-dpi printer instead of a Donna Karan suit.
4. You're more concerned about setting up a World Wide Web page about your company than returning your customers' phone calls.
5. You have three times as many PowerBook carrying cases as you have PowerBooks.
6. When your spouse tells you she wants to eat at someplace new, you tell her to use the Chooser.
7. You've started referring to your morning shower as "zapping parameter RAM." When you have too much to do, you tell people you feel "fragmented." When your spouse had morning sickness, you asked her if she was having an "INIT conflict."



8. You've convinced yourself that you need a 28.8-Kbps modem, but you aren't a member of an online service or bulletin board.
9. Every once in a while you remove all your pens, pencils, rulers, books, letters, and magazines from your desk and then put them back again because you heard that you're supposed to rebuild your desktop.
10. You tap twice on the door to open the refrigerator late at night. When it doesn't open, you reach behind it to find the restart button.

## Miscellaneous

1. You saw *Forrest Gump* three times because of the reference to Apple Computer. The second time, you were still the only person who got the joke. The third time, you stood up in the theater and explained it.
2. Your toddler's first words were "You've got mail!" You thought this was way cooler than "Mama" or "Dada."
3. You asked your pediatrician if it's possible for children to get carpal tunnel syndrome.
4. You found that watching news reports about Intel's botched handling of the Pentium debacle was more amusing than "Late Night with David Letterman."
5. When your manager suggests that you network more with other employees, you point out that you would like to, but they don't have Ethernet cards.
6. You don't know where you put your receipts for filling out your income tax returns, but you know how to play through all four ages of *Myst*.

## Extra Credit

1. You want a text file of this column so that you can send it to online friends whom you've never met.
2. You read *Macworld* from back to front.

## Test Results

Feeling convicted? Send me an E-mail and confess your sins. I'll send you the text of this column. If I get enough E-mail, in a future column I'll document the 12-step method for kicking the Macintosh habit. **m**

GUY KAWASAKI's views are his own and only sporadically represent those of *Macworld*. He is president of Fog City Software. He has investments in Bit Jugglers, Global Village Communication, Bookmaker Corporation, and others. He can be reached at [kawasaki@radiomail.net](mailto:kawasaki@radiomail.net).



---

**THE NEW  
MULTISYNC® XV15  
OUTSHINES THE  
COMPETITION ON  
IMAGE QUALITY,  
ON COMPATIBILITY,  
ON DEPENDABILITY.**

---







CRT with a 13.8" viewable image size and maximum resolution of 1280 x 1024 non-interlaced at 60Hz. It also features Macintosh® and PC compatibility, support for the Microsoft® Plug

and Play standard, and a three-year limited warranty.

And the MultiSync XV15 is priced to be as easy on your budget as it is on your eyes.


For more information, call

1-800-NEC-INFO. For information sent to you via fax, call 1-800-366-0476 and request document #981501.

SEE, HEAR  
AND FEEL THE  
DIFFERENCE™

**NEC**





**BUT YOU WILL SEE A  
STRIKING SIMILARITY  
IN PRICE TAGS.**

Have you ever wondered why so many financial analysts, architects, designers and engineers choose NEC MultiSync monitors? It may be because they're brighter, sharper, easier

to work with and more reliable over the long haul.

Now, with NEC's new MultiSync XV15, the same quality and reliability are within easy reach of everyone

in your company.

The XV15 is the newest member of the NEC MultiSync family. And it shares many of the same famous characteristics. It has a 15" flat square technology



# Not just a zipper. A self-repairing zipper.

If anything obeys Murphy's Law it's a zipper. They always seem to go wrong at the worst possible time.

The good news is that every zipper on every NoteBook Traveler carrying case is self-repairing. That means that if it goes off track, it's easier to get back on track. And because the zipper is flexible, it can actually realign itself.



Of course, attached to the zipper is the rest of our strong and sturdy case.

Features include reinforced stitching for added security, closed-cell foam padding for greater shock absorbency, PVC lining for maximum protection against puncture damage.

Each case comes with the unique Kensington Satisfaction Guarantee, which includes a lifetime warranty and a 90-day no-risk trial.

Choose from six different sizes and styles, each featuring a variety of pockets and compartments. For more information, call 800-535-4242. Outside US and Canada, 415-572-2700. For information by fax, call and request document 613.



NoteBook Traveler®

**KENSINGTON**

NoteBook Traveler and Kensington are registered trademarks of Kensington Microware Limited. All other registered and unregistered trademarks are the sole property of their respective owners. © 1995 Kensington Microware Limited 2/95